	0067: Chronic Stable Coronary Artery Disease: Antiplatelet Therapy	0068: Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antiplatelet
Steward	American College of Cardiology	National Committee for Quality Assurance
Description	Percentage of patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12 month period who were prescribed aspirin or clopidogrel.	The percentage of patients 18 years of age and older who were discharged from an inpatient setting with an acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary intervention (PCI) during the 12 months prior to the measurement year, or who had a diagnosis of ischemic vascular disease (IVD) during the measurement year and the year prior to the measurement year and who had documentation of routine use of aspirin or another antiplatelet during the measurement year.
Type	Process	Process
Data Source	Electronic Clinical Data : Registry This measure is currently being used in the ACCF PINNACLE registry for the outpatient office setting. Available in attached appendix at A.1 No data dictionary	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records N/A No data collection instrument provided Attachment 0068_IVD_Value_Sets_Final.xlsx
Level	Clinician : Individual	Clinician : Group/Practice, Clinician : Individual
Setting	Ambulatory Care : Clinician Office/Clinic	Ambulatory Care : Clinician Office/Clinic
Numerator Statement	Patients who were prescribed* aspirin or clopidogrel within a 12 month period. *Prescribed may include prescription given to the patient for aspirin or clopidogrel at one or more visits in the measurement period OR patient already taking aspirin or clopidogrel as documented in current medication list.	Patients who had documentation of routine use of aspirin or another antiplatelet during the measurement year.
Numerator Details	For Claims/Administrative: Report CPT II Code 4086F: Aspirin or clopidogrel prescribed.	ADMINISTRATIVE Patients who had documentation of routine use of aspirin or another antiplatelet during the measurement year. Refer to Table IVD-E to identify medications for oral anti-platelet therapy. ORAL ANTI-PLATELET THERAPIES (TABLE IVD-E) PRESCRIPTIONS - Aspirin - Clopidogrel - Aspirin-dipyridamole - Prasugrel - Ticagrelor - Ticlopidine ---

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		MEDICAL RECORD Patients who had documentation of routine use of aspirin or another antiplatelet during the measurement year. At a minimum, documentation in the medical record must include a note indicating the date when aspirin or another antiplatelet was prescribed or documentation of prescription from another treating physician.
Denominator Statement	All patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12 month period.	Patients 18 years or older by the end of the measurement year discharged from an inpatient setting with an AMI, CABG, or PCI during the 12 months prior to the measurement year or who had a diagnosis of IVD during both the measurement year and the year prior to the measurement year.
Denominator Details	See 'Registry Supplemental Resources' attached in appendix field A.1 for data dictionary and form. Codes that are applicable for the denominator are: Diagnosis for coronary artery disease (ICD-9-CM) 410.00, 410.01, 410.02, 410.10, 410.11, 410.12, 410.20, 410.21, 410.22, 410.30, 410.31, 410.32, 410.40, 410.41, 410.42, 410.50, 410.51, 410.52, 410.60, 410.61, 410.62, 410.70, 410.71, 410.72, 410.80, 410.81, 410.82, 410.90, 410.91, 410.92, 411.0, 411.1, 411.81, 411.89, 412, 413.0, 413.1, 413.9, 414.00, 414.01, 414.02, 414.03, 414.04, 414.05, 414.06, 414.07, 414.2, 414.3, 414.8, 414.9, V45.81, V45.82 Diagnosis for coronary artery disease (ICD-10-CM): I20.0, I20.1, I20.8, I20.9, I21.01, I21.02, I21.09, I21.11, I21.19, I21.21, I21.29, I21.3, I21.4, I22.0, I22.1, I22.2, I22.8, I22.9, I24.0, I24.1, I24.8, I24.9, I25.10, I25.110, I25.111, I25.118, I25.119, I25.2, I25.5, I25.6, I25.700, I25.701, I25.708, I25.709, I25.710, I25.711, I25.718, I25.719, I25.720, I25.721, I25.728, I25.729, I25.730, I25.731, I25.738, I25.739, I25.750, I25.751, I25.758, I25.759, I25.760, I25.761, I25.768, I25.769, I25.790, I25.791, I25.798, I25.799, I25.810, I25.811, I25.812, I25.82, I25.83, I25.89, I25.9, Z95.1, Z95.5, Z98.61 Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99304, 99305,	ADMINISTRATIVE Patients are identified for the eligible population in two ways: by event or by diagnosis. The organization must use both methods to identify the eligible population, but a patient only needs to be identified by one method to be included in the measure. Event. Any of the following during the year prior to the measurement year meet criteria: - MI. Discharged from an inpatient setting with an MI (MI Value Set)*. Use both facility and professional claims to identify MI. -CABG. Discharged from an inpatient setting with a CABG (CABG Value Set)*. Use both facility and professional claims to identify CABG. -PCI. Patients who had a PCI (PCI Value Set)* in any setting. Diagnosis. Patients who meet at least one of the following criteria during both the measurement year and the year prior to the measurement year. Criteria need not be the same across both years. -At least one outpatient visit (Outpatient Value Set)* with an IVD diagnosis (IVD Value Set)*, or -At least one acute inpatient encounter (Acute Inpatient Value Set)* with an IVD diagnosis (IVD Value Set)*.

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	99306, 99307, 99308, 99309, 99310, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350	*Due to the extensive volume of codes associated with identifying the denominator for this measure, we are attaching a separate file with code value sets. See code value sets located in question S.2b. --- MEDICAL RECORD Documentation of IVD in the medical record includes: - IVD - Ischemic heart disease - Angina - Coronary atherosclerosis - Coronary artery occlusion - Cardiovascular disease - Occlusion or stenosis of precerebral arteries (including basilar, carotid and vertebral arteries) - Atherosclerosis of renal artery - Atherosclerosis of native arteries of the extremities - Chronic total occlusion of artery of the extremities - Arterial embolism and thrombosis - Atheroembolism. Note: Use paper logs, patient registries or electronic medical records (EMRs) to identify the denominator, then use the medical record to confirm patient eligibility.
Exclusions	Documentation of medical reason(s) for not prescribing aspirin or clopidogrel (e.g., allergy, intolerance, receiving other thienopyridine therapy, receiving warfarin therapy, bleeding coagulation disorders, other medical reasons) Documentation of patient reason(s) for not prescribing aspirin or clopidogrel (e.g., patient declined, other patient reasons) Documentation of system reason(s) for not prescribing aspirin or clopidogrel (e.g., lack of drug availability, other reasons attributable to the health care system)	Patients who had documentation of use of anticoagulant medications during the measurement year.
Exclusion Details	For Claims/Administrative: Documentation of medical reason(s) for not prescribing aspirin or clopidogrel • Append modifier to CPT II code 4086F-1P	Patients who had documentation of use of anticoagulant medications during the measurement year. ANTICOAGULANT MEDICATIONS

	0067: Chronic Stable Coronary Artery Disease: Antiplatelet Therapy	0068: Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antiplatelet
	Documentation of patient reason(s) for not prescribing aspirin or clopidogrel • Append modifier to CPT II code 4086F-2P Documentation of system reason(s) for not prescribing aspirin or clopidogrel • Append modifier to CPT II code 4086F-3P	- Apixaban - Argatroban - Bivalirudin - Dabigatran - Dalteparin - Desirudin - Edoxaban - Enoxaparin - Fondaparinux - Heparin - Lepirudin - Rivaroxaban - Tinzaparin - Warfarin
Risk Adjustment	No risk adjustment or risk stratification Not Applicable.	No risk adjustment or risk stratification N/A
Stratification	Not Applicable.	N/A
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1) Find the patients who meet the initial patient population (i.e., the general group of patients that a set of performance measures is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator. (i.e., the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) Find the patients who quality for exclusions and subtract from the denominator. 4) From the patients within the denominator (after exclusions have been subtracted from the denominator), find the patients who qualify for the Numerator (i.e., the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 5) From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for exception when exceptions have been specified [for this measure: medical reason(s)(e.g., eg, allergy, intolerance, receiving	Step 1: Determine the denominator Patients 18 years of age or older by the end of the measurement year AND who were discharged from an inpatient setting for an AMI, CABG or PCI during the 12 months prior to the measurement year or who had a diagnosis of IVD during both the measurement year and the year prior to the measurement year. Step 2: Exclude patients who meet the exclusion criteria Patients on anticoagulant therapy. Step 3: Determine the numerator Patients who had documentation of routine use of aspirin or another antiplatelet during the measurement year. Step 4: Calculate the rate by dividing the numerator (Step 3) by the denominator (after exclusions) (Step 2). No diagram provided

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	other thienopyridine therapy, receiving warfarin therapy, bleeding coagulation disorders, other medical reasons) or patient reason(s)(e.g., economic, social, and/or religious impediments, noncompliance, patient refusal, other patient reason)]. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. -- Although the exception cases are removed from the denominator population for the performance calculation, the exception rate (i.e., percentage of patients with valid exceptions) should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. No diagram provided	
Submission items	5.1 Identified measures: 0465 : Perioperative Anti-platelet Therapy for Patients undergoing Carotid Endarterectomy 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: See 5b.1 for more detailed response due to lack of character spaces in this section. 5b.1 If competing, why superior or rationale for additive value: Measure 0067 looks at whether ASA or clopidogrel where prescribed during a 12 month measurement period. Meanwhile, the two existing NQF endorsed measures (#0465 and #0964) focused on whether the medications were prescribed prior to discharge or prior to surgery. Specifically, Measure #0465 (Perioperative Antiplatelet Therapy for patients undergoing Carotid Endaroretomy)focuses on inpatient who were provided ASA or clopidogrel within 48 hours prior to surgery and prescribed this medication at hospital discharge. Measure #0067 looks at whether ASA or clopidogrel was prescribed during the 12 month measurement period. Both measures allow for medical exceptions. In the case of Measure 0964 (Therapy with aspirin, P2Y12 inhibitor, and statin at discharge following PCI in eligible patients), this measure is	5.1 Identified measures: 0067 : Chronic Stable Coronary Artery Disease: Antiplatelet Therapy 0142 : Aspirin prescribed at discharge for AMI 0076 : Optimal Vascular Care 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: DUE TO THE TEXT LIMIT IN THIS SECTION – WE ARE PROVIDING OUR ANSWER FOR 5a.2 IN SECTION 5b.1. 5b.1 If competing, why superior or rationale for additive value: ANSWER FOR SECTION 5a.2 Our current measure, NQF 0068 – Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antiplatelet, assesses the percentage of patients 18 years of age and older who were discharged from an inpatient setting with an acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary intervention (PCI) during the 12 months prior to the measurement year, AND patients who had a diagnosis of ischemic vascular disease (IVD) during the measurement year and the year prior to

	0067: Chronic Stable Coronary Artery Disease: Antiplatelet Therapy	0068: Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antiplatelet
	also an inpatient measure and focuses on sosley PCI eligible patients who had ASA or P2y12 and statins prescribed prior to discharge. Measure 0067 looks at whether ASA or clopidogrel was prescribed during the 12 month measurement period. Both measures allow for medical exceptions. Measures #0465 and #0964 address a different patient demographic and focuses on inpatient prescribed of ASA or Clopidogrel.	the measurement year, who had documentation of the routine use of aspirin or another antiplatelet during the measurement year. NQF 0068 uses administrative claims, electronic clinical data, electronic health record data, and paper medical records from the ambulatory care setting, providing a wide array of options for how data can be collected and reported. The following is a description of the differences and the impact on interpretability and data collection burden between NQF 0068 and each related measure listed in 5.1a: NQF 0142 – ASPIRIN PRESCRIBED AT DISCHARGE FOR AMI This measure assesses the percentage of AMI patients, 18 years and older, who are prescribed aspirin at hospital discharge. The measure population only includes patients who have had an AMI, whereas NQF 0068 includes patients who have had an AMI, CABG or PCI procedure, and patients who have diagnoses consistent with ischemic vascular disease. NQF 0142 focuses only on aspirin prescribed at discharge while NQF 0068 focuses on documentation of the use of any antiplatelet medication during the measurement year. NQF 0142 is a facility-level measure that uses administrative claims and paper medical records from the inpatient setting; NQF 0068 is a physician-level measure that uses administrative claims, electronic clinical data, electronic health record data, and paper medical records from the ambulatory care setting. There is no impact on interpretability of publically-reported rates or added burden of data collection because the focus of each measure is different, the accountable entity is different and the data for each measure is collected from different data sources by different entities. Additionally, both use value sets of codes to identify patients with AMI that do not conflict. NQF 0067 – CHRONIC STABLE CORONARY ARTERY DISEASE: ANTIPLATELET THERAPY This measure assesses the percentage of

	0067: Chronic Stable Coronary Artery Disease: Antiplatelet Therapy	0068: Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antiplatelet
		patients aged 18 years and older with a diagnosis of coronary artery disease (CAD) who were seen by a physician within a 12-month period and who were prescribed aspirin or clopidogrel. The focus of this measure is very similar to NQF 0068 in that it assesses the routine use of antiplatelet therapy in a twelve-month period for patients with CAD. However, NQF 0068 includes more antiplatelet medications than just aspirin or clopidogrel and includes a broader population of patients with cardiovascular disease than just those with CAD. Although NQF 0067 and NQF 0068 are both physician-level measures that are specified to collect data from administrative claims, electronic clinical data, electronic health record data, and paper medical records from the ambulatory care setting, the impact on interpretability of publically-reported rates or added burden of data collection should be minimal because NQF 0067 is currently only reported through registry data. Additionally, NQF 0067 is focused on only on patients with CAD, while NQF 0068 is focused on a broader population of patients with cardiovascular disease who would benefit from the use of antiplatelet medications. NQF 0076 – OPTIMAL VASCULAR CARE This composite measure assesses the percentage of adult patients ages 18 to 75 who have ischemic vascular disease with optimally-managed modifiable risk factors (blood pressure, tobacco-free status, daily aspirin use) at their most recent visit with a physician during the measurement year. While the focus populations for NQF 0076 and NQF 0068 are very similar, NQF 0076 is a composite that includes assessment of blood pressure control and tobacco use status. NQF 0068 assesses the routine use of aspirin or other antiplatelet medications while NQF 0076 focuses only on aspirin use. NQF 0076 does not use administrative claims though it does use electronic clinical data, electronic health record data, and paper medical records from the ambulatory care setting, which is similar to

	0067: Chronic Stable Coronary Artery Disease: Antiplatelet Therapy	0068: Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antiplatelet
		NQF 0068. Despite the similarities, there should be minimal impact on interpretability of publically-reported rates or added burden of data collection between the two measures since NQF 0076 is a composite of multiple indicators while NQF 0068 is focused only on antiplatelet therapy. NQF 2452 – PERCUTANEOUS CORONARY INTERVENTION (PCI): POST-PROCEDURAL OPTIMAL MEDICAL THERAPY (NOTE: UNABLE TO SELECT IN 5.a1) NQF 2452 is a composite measure that assesses the percentage of patients undergoing PCI who receive prescriptions for all medications (aspirin, P2Y12 and statins) for which they are eligible for at discharge. The measure population for NQF 2452 is patients undergoing PCI while NQF 0068 includes patient who have had an AMI, CABG or PCI procedure, and patients who have diagnoses consistent with ischemic vascular disease. NQF 2452 assesses the prescription of aspirin, P2Y12 agents, and statins at discharge; NQF 0068 assesses documentation of use of antiplatelet medications during the measurement year. NQF 2452 is a physician-level measure that uses data from registries while NQF 0068 is a physician-level measure that uses administrative claims, electronic clinical data, electronic health record data, and paper medical records from the ambulatory care setting. There is no impact on interpretability of publically-reported rates or added burden of data collection because the focus of each measure is different and the data for each measure is collected from different data sources by different entities. NQF 0964 – THERAPY WITH ASPIRIN, P2Y12 INHIBITOR, AND STATIN AT DISCHARGE FOLLOWING PCI IN ELIGIBLE PATIENTS (NOTE: UNABLE TO SELECT IN 5.a1) NQF 0964 is a composite measure that assesses the percentage of patients undergoing PCI who receive prescriptions for all medications (aspirin, P2Y12 and

	0067: Chronic Stable Coronary Artery Disease: Antiplatelet Therapy	0068: Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antiplatelet
		statins) for which they are eligible for at discharge. The measure population for NQF 0964 is patients undergoing PCI while NQF 0068 includes patient who have had an AMI, CABG or PCI procedure, and patients who have diagnoses consistent with ischemic vascular disease. NQF 0964 assesses the prescription of aspirin, P2Y12 agents, and statins at discharge; NQF 0068 assesses documentation of use of antiplatelet medications during the measurement year. NQF 0964 is a facility-level measure that uses data from registries while NQF 0068 is a physician-level measure that uses administrative claims, electronic clinical data, electronic health record data, and paper medical records from the ambulatory care setting. There is no impact on interpretability of publically-reported rates or added burden of data collection because the focus of each measure is different, the accountable entity is different and the data for each measure is collected from different data sources by different entities. ANSWER FOR SECTION 5b.1 Our current measure, NQF 0068, has a long history of use and is implemented in four national programs: PQRS, EHR Incentive Program, CMS ACO Shared Savings Program, and the Heart/Stroke Recognition Program.

	0081: Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)	0066: Coronary Artery Disease (CAD): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy - Diabetes or Left Ventricular Systolic Dysfunction (LVEF < 40%)
Steward	AMA-PCPI	American College of Cardiology
Description	Percentage of patients aged 18 years and older with a diagnosis of heart failure with a current or prior LVEF < 40% who were prescribed beta-blocker therapy either within a 12 month period when seen in the outpatient setting or at hospital discharge	Percentage of patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12 month period who also have diabetes OR a current or prior Left Ventricular Ejection Fraction (LVEF) < 40% who were prescribed ACE inhibitor or ARB therapy
Type	Process	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry not applicable No data collection instrument provided Attachment 0081_AMAPCPI_HF-ACEARB_ValueSets_June2015-635712727320959997.xlsx	Administrative claims This measure, in its previous specifications, is currently being used in the ACCF PINNACLE registry for the outpatient office setting. URL No data dictionary
Level	Clinician : Group/Practice, Clinician : Individual	Clinician : Group/Practice, Clinician : Individual, Clinician : Team
Setting	Ambulatory Care : Clinician Office/Clinic, Home Health, Hospital/Acute Care Facility, Post Acute/Long Term Care Facility : Long Term Acute Care Hospital, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility, Other Domiciliary	Ambulatory Care : Clinician Office/Clinic, Home Health, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility, Behavioral Health/Psychiatric : Outpatient, Ambulatory Care : Urgent Care
Numerator Statement	Patients who were prescribed* ACE inhibitor or ARB therapy either within a 12 month period when seen in the outpatient setting or at hospital discharge *Prescribed may include: Outpatient setting: prescription given to the patient for ACE inhibitor or ARB therapy at one or more visits in the measurement period OR patient already taking ACE inhibitor or ARB therapy as documented in current medication list Inpatient setting: prescription given to the patient for ACE inhibitor or ARB therapy at discharge OR ACE inhibitor or ARB therapy to be continued after discharge as documented in the discharge medication list	Patients who were prescribed ACE inhibitor or ARB therapy
Numerator Details	For EHR: HQMF eMeasure developed and is included in this submission. For Registry: Definitions: Prescribed – Outpatient setting: May include	Numerator Definition: Prescribed – May include prescription given to the patient for ACE inhibitor or ARB therapy at one or more visits in the measurement period OR patient already taking ACE inhibitor or ARB therapy as documented in current medication

	0081: Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)	0066: Coronary Artery Disease (CAD): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy - Diabetes or Left Ventricular Systolic Dysfunction (LVEF < 40%)
	prescription given to the patient for ACE inhibitor or ARB therapy at one or more visits in the measurement period OR patient already taking ACE inhibitor or ARB therapy as documented in current medication list. Prescribed – Inpatient setting: May include prescription given to the patient for ACE inhibitor or ARB therapy at discharge OR ACE inhibitor or ARB therapy to be continued after discharge as documented in the discharge medication list. Report CPT Category II Code, 4010F : Angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy prescribed or currently being taken	list. FOR EHR SPECIFICATION: No Current HQMF eCQM Available. FOR ADMINISTRATIVE CLAIMS SPECIFICATIONS: Report Quality Data Code G8935: Clinician prescribed angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy
Denominator Statement	All patients aged 18 years and older with a diagnosis of heart failure with a current or prior LVEF < 40%	All patients aged 18 years and older with a diagnosis of coronary artery disease (CAD) seen within a 12 month period who also have diabetes or a current or prior LVEF <40%
Denominator Details	For EHR: HQMF eMeasure developed and is included in this submission. DENOMINATOR DEFINITION: LVEF < 40% corresponds to qualitative documentation of moderate dysfunction or severe dysfunction. DENOMINATOR NOTES: To meet this measure, it must be reported for all heart failure patients a minimum of once during the measurement period when seen in the outpatient setting AND reported at each hospital discharge during the measurement period. The requirement of “Count >=2 of Encounter, Performed“ is to establish that the eligible professional has an existing relationship with the patient. For Registry: Option 1, Outpatient Setting: Patients aged >= 18 years AND Diagnosis for heart failure (ICD-9-CM) [for use 1/1/2015-9/30/2015]: 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 428.0, 428.1, 428.20, 428.21, 428.22, 428.23, 428.30, 428.31, 428.32, 428.33, 428.40, 428.41,	Denominator Definition: LVEF < 40% corresponds to qualitative documentation of moderate dysfunction or severe dysfunction. FOR EHR SPECIFICATION: No Current HQMF eCQM Available. FOR ADMINISTRATIVE CLAIMS SPECIFICATIONS: Option 1 Patients aged >= 18 years AND Diagnosis for coronary artery disease (ICD-9-CM) [for use 1/1/2015-9/30/2015]: 410.00, 410.01, 410.02, 410.10, 410.11, 410.12, 410.20, 410.21, 410.22, 410.30, 410.31, 410.32, 410.40, 410.41, 410.42, 410.50, 410.51, 410.52, 410.60, 410.61, 410.62, 410.70, 410.71, 410.72, 410.80, 410.81, 410.82, 410.90, 410.91, 410.92, 411.0, 411.1, 411.81, 411.89, 412, 413.0, 413.1, 413.9, 414.00, 414.01, 414.02, 414.03, 414.04, 414.05, 414.06, 414.07, 414.2, 414.3, 414.8, 414.9, V45.81, V45.82 Diagnosis for coronary artery disease(ICD-10-CM) [for use 10/01/2015-12/31/2015]: I20.0, I20.1, I20.8, I20.9, I21.01, I21.02, I21.09, I21.11, I21.19, I21.21, I21.29, I21.3, I21.4, I22.0, I22.1, I22.2, I22.8, I22.9, I24.0, I24.1, I24.8, I24.9, I25.10, I25.110, I25.111, I25.118, I25.119, I25.2,

	0081: Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)	0066: Coronary Artery Disease (CAD): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy - Diabetes or Left Ventricular Systolic Dysfunction (LVEF < 40%)
	428.42, 428.43, 428.9 Diagnosis for heart failure (ICD-10-CM) [for use 10/01/2015-12/31/2015]: I11.0, I13.0, I13.2, I50.1, I50.20, I50.21, I50.22, I50.23, I50.30, I50.31, I50.32, I50.33, I50.40, I50.41, I50.42, I50.43, I50.9 AND Patient encounter(s) during reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99304, 99305, 99306, 99307, 99308, 99309, 99310, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350 AND Two Denominator Eligible Visits AND Left ventricular ejection fraction (LVEF) < 40% or documentation of moderately or severely depressed left ventricular systolic function: 3021F Option 2, Inpatient Setting: Patients aged >= 18 years AND Diagnosis for heart failure (ICD-9-CM) [for use 1/1/2015-9/30/2015]: 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 428.0, 428.1, 428.20, 428.21, 428.22, 428.23, 428.30, 428.31, 428.32, 428.33, 428.40, 428.41, 428.42, 428.43, 428.9 Diagnosis for heart failure (ICD-10-CM) [for use 10/01/2015-12/31/2015]: I11.0, I13.0, I13.2, I50.1, I50.20, I50.21, I50.22, I50.23, I50.30, I50.31, I50.32, I50.33, I50.40, I50.41, I50.42, I50.43, I50.9 AND Patient encounter during reporting period (CPT): 99238, 99239 AND Left ventricular ejection fraction (LVEF) < 40% or documentation of moderately or severely depressed left ventricular systolic function: 3021F	I25.5, I25.6, I25.700, I25.701, I25.708, I25.709, I25.710, I25.711, I25.718, I25.719, I25.720, I25.721, I25.728, I25.729, I25.730, I25.731, I25.738, I25.739, I25.750, I25.751, I25.758, I25.759, I25.760, I25.761, I25.768, I25.769, I25.790, I25.791, I25.798, I25.799, I25.810, I25.811, I25.812, I25.82, I25.83, I25.89, I25.9, Z95.1, Z95.5, Z98.61 AND Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99304, 99305, 99306, 99307, 99308, 99309, 99310, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350 AND Two Denominator Eligible Visits AND Left Ventricular Ejection Fraction (LVEF) < 40% or documentation of moderately or severely depressed left ventricular systolic function: G8934 Option 2 Patients aged >= 18 years AND Diagnosis for coronary artery disease (ICD-9-CM) [for use 1/1/2015-9/30/2015]: 410.00, 410.01, 410.02, 410.10, 410.11, 410.12, 410.20, 410.21, 410.22, 410.30, 410.31, 410.32, 410.40, 410.41, 410.42, 410.50, 410.51, 410.52, 410.60, 410.61, 410.62, 410.70, 410.71, 410.72, 410.80, 410.81, 410.82, 410.90, 410.91, 410.92, 411.0, 411.1, 411.81, 411.89, 412, 413.0, 413.1, 413.9, 414.00, 414.01, 414.02, 414.03, 414.04, 414.05, 414.06, 414.07, 414.2, 414.3, 414.8, 414.9, V45.81, V45.82 Diagnosis for coronary artery disease (ICD-10-CM) [for use 10/01/2015-12/31/2015]: I20.0, I20.1, I20.8, I20.9, I21.01, I21.02, I21.09, I21.11, I21.19, I21.21, I21.29, I21.3, I21.4, I22.0, I22.1, I22.2, I22.8, I22.9, I24.0, I24.1, I24.8, I24.9, I25.10, I25.110, I25.111, I25.118, I25.119, I25.2, I25.5, I25.6, I25.700, I25.701, I25.708, I25.709, I25.710, I25.711, I25.718, I25.719, I25.720,

	0081: Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)	0066: Coronary Artery Disease (CAD): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy - Diabetes or Left Ventricular Systolic Dysfunction (LVEF < 40%)
		I25.721, I25.728, I25.729, I25.730, I25.731, I25.738, I25.739, I25.750, I25.751, I25.758, I25.759, I25.760, I25.761, I25.768, I25.769, I25.790, I25.791, I25.798, I25.799, I25.810, I25.811, I25.812, I25.82, I25.83, I25.89, I25.9, Z95.1, Z95.5, Z98.61 AND Diagnosis for diabetes (ICD-9-CM) [for use 1/1/2015-9/30/2015]: 250.00, 250.01, 250.02, 250.03, 250.10, 250.11, 250.12, 250.13, 250.20, 250.21, 250.22, 250.23, 250.30, 250.31, 250.32, 250.33, 250.40, 250.41, 250.42, 250.43, 250.50, 250.51, 250.52, 250.53, 250.60, 250.61, 250.62, 250.63, 250.70, 250.71, 250.72, 250.73, 250.80, 250.81, 250.82, 250.83, 250.90, 250.91, 250.92, 250.93 Diagnosis for diabetes (ICD-10-CM) [for use 10/01/2015-12/31/2015]: E10.10, E10.11, E10.21, E10.22, E10.29, E10.311, E10.319, E10.321, E10.329, E10.331, E10.339, E10.341, E10.349, E10.351, E10.359, E10.36, E10.39, E10.40, E10.41, E10.42, E10.43, E10.44, E10.49, E10.51, E10.52, E10.59, E10.610, E10.618, E10.620, E10.621, E10.622, E10.628, E10.630, E10.638, E10.641, E10.649, E10.65, E10.69, E10.8, E10.9, E11.00, E11.01, E11.21, E11.22, E11.29, E11.311, E11.319, E11.321, E11.329, E11.331, E11.339, E11.341, E11.349, E11.351, E11.359, E11.36, E11.39, E11.40, E11.41, E11.42, E11.43, E11.44, E11.49, E11.51, E11.52, E11.59, E11.610, E11.618, E11.620, E11.621, E11.622, E11.628, E11.630, E11.638, E11.641, E11.649, E11.65, E11.69, E11.8, E11.9, E13.00, E13.01, E13.10, E13.11, E13.21, E13.22, E13.29, E13.311, E13.319, E13.321, E13.329, E13.331, E13.339, E13.341, E13.349, E13.351, E13.359, E13.36, E13.39, E13.40, E13.41, E13.42, E13.43, E13.44, E13.49, E13.51, E13.52, E13.59, E13.610, E13.618, E13.620, E13.621, E13.622, E13.628, E13.630, E13.638, E13.641, E13.649, E13.65, E13.69, E13.8, E13.9 AND Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99304, 99305, 99306, 99307, 99308, 99309, 99310, 99324, 99325,

	0081: Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)	0066: Coronary Artery Disease (CAD): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy - Diabetes or Left Ventricular Systolic Dysfunction (LVEF < 40%)
		99326, 99327, 99328, 99334, 99335, 99336, 99337, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350 AND Two Denominator Eligible Visits
Exclusions	Documentation of medical reason(s) for not prescribing ACE inhibitor or ARB therapy (eg, hypotensive patients who are at immediate risk of cardiogenic shock, hospitalized patients who have experienced marked azotemia, allergy, intolerance, other medical reasons) Documentation of patient reason(s) for not prescribing ACE inhibitor or ARB therapy (eg, patient declined, other patient reasons) Documentation of system reason(s) for not prescribing ACE inhibitor or ARB therapy (eg, other system reasons)	Documentation of medical reason(s) for not prescribing ACE inhibitor or ARB therapy (eg, allergy, intolerant, pregnancy, renal failure due to ACE inhibitor, diseases of the aortic or mitral valve, other medical reasons) Documentation of patient reason(s) for not prescribing ACE inhibitor or ARB therapy (eg, patient declined, other patient reasons) Documentation of system reason(s) for not prescribing ACE inhibitor or ARB therapy (eg, lack of drug availability, other reasons attributable to the health care system)
Exclusion Details	Exceptions are used to remove a patient from the denominator of a performance measure when the patient does not receive a therapy or service AND that therapy or service would not be appropriate due to patient-specific reasons. The patient would otherwise meet the denominator criteria. Exceptions are not absolute, and are based on clinical judgment, individual patient characteristics, or patient preferences. This measure was developed using PCPI exception methodology which uses three categories of reasons for which a patient may be removed from the denominator of an individual measure. These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples are provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. For measure : Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction, exceptions may include medical reasons (e.g. hypotensive patients who are at immediate risk of cardiogenic shock, hospitalized patients who have experienced marked azotemia), patient, and/or system reasons for not prescribing an ACE/ARB. Where examples of	FOR EHR SPECIFICATION: No Current HQMF eCQM Available. FOR ADMINISTRATIVE CLAIMS SPECIFICATIONS: Report Quality Data Code G8474: Angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy not prescribed for reasons documented by the clinician (eg, allergy, intolerance, pregnancy, renal failure due to ACE inhibitor, diseases of the aortic or mitral valve, other medical reasons) or (eg, patient declined, other patient reasons) or (eg, lack of drug availability, other reasons attributable to the health care system)

	0081: Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)	0066: Coronary Artery Disease (CAD): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy - Diabetes or Left Ventricular Systolic Dysfunction (LVEF < 40%)
	exceptions are included in the measure language, value sets for these examples are developed and included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. Additional details by data source are as follows: For EHR: HQMF eMeasure developed and is included in this submission. For Registry: Append a modifier to CPT Category II Code: 4010F-1P : Documentation of medical reason(s) for not prescribing angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy (eg, hypotensive patients who are at immediate risk of cardiogenic shock, hospitalized patients who have experienced marked azotemia, allergy, intolerance, other medical reasons) 4010F-2P : Documentation of patient reason(s) for not prescribing angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy (eg, patient declined, other patient reasons) 4010F-3P : Documentation of system reason(s) for not prescribing angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy (eg, other system reasons)	
Risk Adjustment	No risk adjustment or risk stratification No risk adjustment or risk stratification	No risk adjustment or risk stratification
Stratification	Consistent with CMS' Measures Management System Blueprint and recent national recommendations put forth by the IOM and NQF to standardize the collection of race and ethnicity data, we encourage the results of this measure to be stratified by race, ethnicity, administrative sex, and payer and have included	We encourage the results of this measure to be stratified by race, ethnicity, sex, and payer.

	0081: Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)	0066: Coronary Artery Disease (CAD): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy - Diabetes or Left Ventricular Systolic Dysfunction (LVEF < 40%)
	these variables as recommended data elements to be collected.	
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1. Find the patients who meet the initial population (ie, the general group of patients that a set of performance measures is designed to address). 2. From the patients within the initial population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial population and denominator are identical. 3. From the patients within the denominator, find the patients who meet the numerator criteria (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 4. From the patients who did not meet the numerator criteria, determine if the provider has documented that the patient meets any criteria for exception when denominator exceptions have been specified [for this measure: Documentation of medical reason(s) for not prescribing ACE inhibitor or ARB therapy (eg, hypotensive patients who are at immediate risk of cardiogenic shock, hospitalized patients who have experienced marked azotemia); Documentation of patient reason(s) for not prescribing ACE inhibitor or ARB therapy; Documentation of system reason(s) for not prescribing ACE inhibitor or ARB therapy. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. --Although the exception cases are removed from the denominator population for the performance calculation, the exception rate (ie, percentage with valid exceptions) should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI.	To calculate performance rates: 1) Find the patients who meet the initial patient population (ie, the general group of patients that the performance measure is designed to address). 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical. 3) From the patients within the denominator, find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator If the patient does not meet the numerator, this case represents a quality failure.

	0081: Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)	0066: Coronary Artery Disease (CAD): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy - Diabetes or Left Ventricular Systolic Dysfunction (LVEF < 40%)
	If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. No diagram provided	
Submission items	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value:	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: Related Measures: Maintenance submission of NQF #0066: ACE Inhibitor/Angiotensin Receptor Blocker (ARB) Therapy

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
Steward	AMA-PCPI	The Joint Commission
Description	Percentage of patients aged 18 years and older with a diagnosis of heart failure with a current or prior LVEF < 40% who were prescribed beta-blocker therapy either within a 12 month period when seen in the outpatient setting or at hospital discharge	Proportion of heart failure patients age18 and older with LVSD for whom beta-blocker therapy (i.e., bisoprolol, carvedilol, or sustained-release metoprolol succinate) is prescribed at discharge. For purposes of this measure, LVSD is defined as chart documentation of a left ventricular ejection fraction (LVEF) less than 40% or a narrative description of left ventricular systolic (LVS) function consistent with moderate or severe systolic dysfunction.
Type	Process	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry No data collection instrument provided Attachment 0083_AMAPCPI_HF-BB_ValueSets_June2015-635712735683880063.xlsx	Electronic Clinical Data : Electronic Health Record, Paper Medical Records A web-based data collection tool was developed by The Joint Commission for the pilot process. Moving forward, hospitals have the flexibility of creating their own tool modeled after the pilot tool or they may develop their own data collection tools using the data element dictionary and allowable values specified in the implementation guide. No data collection instrument provided Attachment ACHF_Appendix_ICD-9_and_ICD-10_Codes-635230560443297553.xlsx
Level	Clinician : Group/Practice, Clinician : Individual	Facility
Setting	Ambulatory Care : Clinician Office/Clinic, Home Health, Hospital/Acute Care Facility, Post Acute/Long Term Care Facility : Long Term Acute Care Hospital, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility, Other Domiciliary	Hospital/Acute Care Facility
Numerator Statement	Patients who were prescribed* beta-blocker therapy** either within a 12 month period when seen in the outpatient setting or at hospital discharge *Prescribed may include: Outpatient setting: prescription given to the patient for beta-blocker therapy at one or more visits in the measurement period OR patient	Patients who are prescribed bisoprolol, carvedilol, or sustained-release metoprolol succinate for LVSD at hospital discharge.

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
	already taking beta-blocker therapy as documented in current medication list Inpatient setting: prescription given to the patient for beta-blocker therapy at discharge OR beta-blocker therapy to be continued after discharge as documented in the discharge medication list **Beta-blocker therapy should include bisoprolol, carvedilol, or sustained release metoprolol succinate. (see technical specifications for additional information on medications)	
Numerator Details	For EHR: HQMF eMeasure developed and is included in this submission. For Registry: Definitions: Prescribed – Outpatient Setting - May include prescription given to the patient for beta-blocker therapy at one or more visits in the measurement period OR patient already taking beta-blocker therapy as documented in current medication list. Prescribed – Inpatient Setting: May include prescription given to the patient for beta-blocker therapy at discharge OR beta-blocker therapy to be continued after discharge as documented in the discharge medication list. Beta-blocker Therapy - For patients with prior LVEF < 40%, beta-blocker therapy should include bisoprolol, carvedilol, or sustained release metoprolol succinate. Report Quality Data Code, G8450: Beta-blocker therapy prescribed	One data element used to calculate numerator: Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Prescribed for LVSD at Discharge Data element defined: Documentation that bisoprolol, carvedilol, or sustained-release metoprolol was prescribed at discharge. Beta-blockers are agents which block beta-adrenergic receptors, thereby decreasing the rate and force of heart contractions, and reducing blood pressure. Over time beta-blockers improve the heart's pumping ability. The marked beneficial effects of beta blockade has been well demonstrated in large-scale clinical trials of symptomatic patients with New York Heart Association (NYHA) class II-IV heart failure and reduced LVEF using bisoprolol, carvedilol, and sustained-release metoprolol succinate.
Denominator Statement	All patients aged 18 years and older with a diagnosis of heart failure with a current or prior LVEF < 40% LVEF < 40% corresponds to qualitative documentation of moderate dysfunction or severe dysfunction	Heart failure patients with current or prior documentation of left ventricular ejection fraction (LVSD) < 40%.
Denominator Details	For EHR: HQMF eMeasure developed and is included in this submission. DENOMINATOR DEFINITION: LVEF < 40% corresponds to qualitative documentation of moderate dysfunction or	Included Populations: • Discharges with ICD-9-CM Principal Diagnosis Code for HF as defined in Appendix A, Table 2.1, and • Documentation of LVSD < 40% ICD-9-CM Table 2.1 Heart Failure (HF)

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
	severe dysfunction. DENOMINATOR NOTES: To meet this measure, it must be reported for all heart failure patients a minimum of once during the measurement period when seen in the outpatient setting AND reported at each hospital discharge during the measurement period. The requirement of "Count >=2 of Encounter, Performed" is to establish that the eligible professional has an existing relationship with the patient. For Registry: Option 1, Outpatient Setting: Patients aged >=18 years AND Diagnosis for heart failure (ICD-9-CM) [for use 1/1/2015-9/30/2015]: 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 428.0, 428.1, 428.20, 428.21, 428.22, 428.23, 428.30, 428.31, 428.32, 428.33, 428.40, 428.41, 428.42, 428.43, 428.9 Diagnosis for heart failure (ICD-10-CM) [for use 10/01/2015-12/31/2015]: I11.0, I13.0, I13.2, I50.1, I50.20, I50.21, I50.22, I50.23, I50.30, I50.31, I50.32, I50.33, I50.40, I50.41, I50.42, I50.43, I50.9 AND Patient encounter(s) during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99304, 99305, 99306, 99307, 99308, 99309, 99310, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350 AND Two Denominator Eligible Visits AND Left ventricular ejection fraction (LVEF) < 40% or documentation of moderately or severely depressed left ventricular systolic function: G8923 Option 2, Inpatient Setting: Patients aged >= 18 years AND Diagnosis for heart failure (ICD-9-CM) [for use	Code: Shortened Description 402.01: MAL HYPERT HRT DIS W HF 402.11: BENIGN HYP HT DIS W HF 402.91: HYP HT DIS NOS W HT FAIL 404.01: MAL HYP HT/KD I-IV W HF 404.03: MAL HYP HT/KD STG V W HF 404.11: BEN HYP HT/KD I-IV W HF 404.13: BEN HYP HT/KD STG V W HF 404.91: HYP HT/KD NOS I-IV W HF 404.93: HYP HT/KD NOS ST V W HF 428.0: CHF NOS 428.1: LEFT HEART FAILURE 428.20: SYSTOLIC HRT FAILURE NOS 428.21: AC SYSTOLIC HRT FAILURE 428.22: CHR SYSTOLIC HRT FAILURE 428.23: AC ON CHR SYST HRT FAIL 428.30: DIASTOLC HRT FAILURE NOS 428.31: AC DIASTOLIC HRT FAILURE 428.32: CHR DIASTOLIC HRT FAIL 428.33: AC ON CHR DIAST HRT FAIL 428.40: SYST/DIAST HRT FAIL NOS 428.41: AC SYST/DIASTOL HRT FAIL 428.42: CHR SYST/DIASTL HRT FAIL 428.43: AC/CHR SYST/DIA HRT FAIL 428.9: HEART FAILURE NOS 11 data elements are used to calculate the denominator. Data elements and definitions: • Admission Date: The month, day, and year of admission to acute inpatient care. • Birthdate: The month, day, and year the patient was born. • Clinical Trial: Documentation that during this hospital stay the patient was enrolled in a clinical trial in which patients with the same condition as the measure set were being studied. • Comfort Measures Only: Comfort Measures Only refers to medical treatment of a dying person where the natural dying process is permitted to occur while assuring maximum comfort. It includes

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
	1/1/2015-9/30/2015]: 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 428.0, 428.1, 428.20, 428.21, 428.22, 428.23, 428.30, 428.31, 428.32, 428.33, 428.40, 428.41, 428.42, 428.43, 428.9 Diagnosis for heart failure (ICD-10-CM) [for use 10/01/2015-12/31/2015]: I11.0, I13.0, I13.2, I50.1, I50.20, I50.21, I50.22, I50.23, I50.30, I50.31, I50.32, I50.33, I50.40, I50.41, I50.42, I50.43, I50.9 AND Patient encounter during reporting period (CPT): 99238, 99239 AND Left ventricular ejection fraction (LVEF) < 40% or documentation of moderately or severely depressed left ventricular systolic function: 3021F	attention to the psychological and spiritual needs of the patient and support for both the dying patient and the patient's family. Comfort Measures Only is commonly referred to as “comfort care” by the general public. It is not equivalent to a physician order to withhold emergency resuscitative measures such as Do Not Resuscitate (DNR). • Discharge Disposition: The final place or setting to which the patient was discharged on the day of discharge. • ICD-9-CM Other Procedure Codes: The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes identifying all significant procedures other than the principal procedure. • ICD-9-CM Principal Diagnosis Code: The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code associated with the diagnosis established after study to be chiefly responsible for occasioning the admission of the patient for this hospitalization. • ICD-9-CM Principal Procedure Code: The International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code that identifies the principal procedure performed during this hospitalization. The principal procedure is the procedure performed for definitive treatment rather than diagnostic or exploratory purposes, or which is necessary to take care of a complication. • ICD-9-CM Principal Procedure Date: The month, day, and year when the principal procedure was performed. • LVSD < 40%: Left ventricular systolic dysfunction (LVSD) documented in medical record. LVSD is defined as a left ventricular

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
		ejection fraction less than 40% or a narrative description consistent with moderate or severe systolic dysfunction. • Reason for No Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Prescribed for LVSD at Discharge: Reasons for not prescribing bisoprolol, carvedilol, or sustained-release metoprolol succinate at discharge: o Beta-blocker allergy o Second or third-degree heart block on ECG on arrival or during hospital stay and does not have a pacemaker o Other reasons documented by physician/advanced practice nurse/physician assistant (physician/APN/PA) or pharmacist
Exclusions	Documentation of medical reason(s) for not prescribing beta-blocker therapy (eg, low blood pressure, fluid overload, asthma, patients recently treated with an intravenous positive inotropic agent) Documentation of patient reason(s) for not prescribing beta-blocker therapy Documentation of system reason(s) for not prescribing beta-blocker therapy	Excluded Populations: • Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code for LVAD and heart transplant as defined in Appendix A, Table 2.2) • Patients less than 18 years of age • Patients who have a Length of Stay greater than 120 days • Patients with Comfort Measures Only documented • Patients enrolled in a Clinical Trial • Patients discharged to another hospital • Patients who left against medical advice • Patients who expired • Patients discharged to home for hospice care • Patients discharged to a healthcare facility for hospice care • Patients with a documented Reason for No Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate Prescribed for LVSD at Discharge

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
Exclusion Details	Exceptions are used to remove a patient from the denominator of a performance measure when the patient does not receive a therapy or service AND that therapy or service would not be appropriate due to patient-specific reasons. The patient would otherwise meet the denominator criteria. Exceptions are not absolute, and are based on clinical judgment, individual patient characteristics, or patient preferences. This measure was developed using the PCPI exception methodology which uses three categories of reasons for which a patient may be removed from the denominator of an individual measure. These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples are provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. For measure Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction, exceptions may include Documentation of medical reason(s) for not prescribing beta-blocker therapy (eg, low blood pressure, fluid overload, asthma, patients recently treated with an intravenous positive inotropic agent), Documentation of patient reason(s) for not prescribing beta-blocker therapy, or Documentation of system reason(s) for not prescribing beta-blocker therapy. Where examples of exceptions are included in the measure language, value sets for these examples are developed and included in the eSpecifications. Although this methodology does not require the external reporting of more detailed exception data, the PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. Additional details by data source are as follows: For EHR:	Exclusion Details: • Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code for LVAD and heart transplant as defined in Appendix A, Table 2.2): ICD-9-CM Table 2.2 Left Ventricular Assistive Device (LVAD) and Heart Transplant Code: Shortened Description 33.6: COMB HEART/LUNG TRANSPLA 37.51: HEART TRANSPLANTATION 37.52: IMP TOT INT BI HT RP SYS 37.53: REPL/REP THR UNT TOT HRT 37.54: REPL/REP OTH TOT HRT SYS 37.60: IMP BIVN EXT HRT AST SYS 37.62: INSRT NON-IMPL CIRC DEV 37.63: REPAIR HEART ASSIST SYS 37.65: IMP VENT EXT HRT AST SYS 37.66: IMPLANTABLE HRT ASSIST 37.68: PERCUTAN HRT ASSIST SYST • Patients less than 18 years of age. o Patient age (in years) equals Admission Date minus Birthdate. • Patients who have a Length of Stay greater than 120 days. o Length of Stay (in days) equals Discharge Date minus Admission Date. • Patients with Comfort Measures Only documented: o Physician/APN/PA documentation of comfort measures only (hospice, comfort care, etc.) mentioned in the following contexts suffices to exclude a case from the measure: x Comfort measures only recommendation x Order for consultation or evaluation by a hospice care service x Patient or family request for comfort measures only x Plan for comfort measures only

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
	HQMF eMeasure developed and is included in this submission. For Registry: Report Quality Data Code G8451: Beta-Blocker Therapy for LVEF < 40% not prescribed for reasons documented by the clinician (eg, low blood pressure, fluid overload, asthma, patients recently treated with an intravenous positive inotropic agent, allergy, intolerance, other medical reasons, patient declined, other patient reasons, other reasons attributable to the healthcare system)	x Referral to hospice care service • Patients enrolled in a Clinical Trial. o Patients are excluded if "Yes" is selected for Clinical Trial. • Patients discharged to another hospital o Determined by the data element Discharge Disposition, allowable value #4 Acute Care Facility • Patients who left against medical advice o Determined by the data element Discharge Disposition, allowable value #7 Left Against Medical Advice/AMA • Patients who expired o Determined by the data element Discharge Disposition allowable value #6 Expired • Patients discharged to home for hospice care o Determined by the data element Discharge Disposition allowable value #2 Hospice-Home • Patients discharged to a healthcare facility for hospice care o Determined by the data element Discharge Disposition allowable value #3 Hospice-Health Care Facility • Patients with a documented Reason for No Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate Prescribed for LVSD at Discharge o Reasons for not prescribing bisoprolol, carvedilol, or sustained-release metoprolol succinate at discharge: x Beta-blocker allergy x Second or third-degree heart block on ECG on arrival or during hospital stay and does not have a pacemaker x Other reasons documented by physician/advanced practice nurse/physician assistant

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
		(physician/APN/PA) or pharmacist
Risk Adjustment	No risk adjustment or risk stratification n/a	No risk adjustment or risk stratification Not Applicable
Stratification	Consistent with CMS' Measures Management System Blueprint and recent national recommendations put forth by the IOM and NQF to standardize the collection of race and ethnicity data, we encourage the results of this measure to be stratified by race, ethnicity, administrative sex, and payer and have included these variables as recommended data elements to be collected.	Not Applicable
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	To calculate performance rates: 1. Find the patients who meet the initial population (ie, the general group of patients that a set of performance measures is designed to address). 2. From the patients within the initial population criteria, find the patients who qualify for the denominator (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial population and denominator are identical. 3. From the patients within the denominator, find the patients who meet the numerator criteria (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator 4. From the patients who did not meet the numerator criteria, determine if the provider has documented that the patient meets any criteria for exception when denominator exceptions have been specified [for this measure: Documentation of medical reason(s) for not prescribing beta-blocker therapy (eg, low blood pressure, fluid overload, asthma, patients recently treated with an intravenous positive inotropic agent); Documentation of patient reason(s) for not prescribing beta-blocker therapy; Documentation of system reason(s) for	Advanced Certification Heart Failure (ACHF) Initial Patient Population Algorithm Variable Key: Patient Age, Length of Stay and Initial Patient Population Reject Case Flag 1. Start ACHF Initial Patient Population logic sub-routine. Process all cases that have successfully reached the point in the Transmission Data Processing Flow: Clinical which calls this Initial Patient Population Algorithm. Do not process cases that have been rejected before this point in the Transmission Data Processing Flow: Clinical. 2. Check ICD-9-CM Principal Diagnosis Code a. If ICD-9-CM Principal Diagnosis Code is not on Table 2.1, the patient is not in the ACHF Topic Population and is not eligible to be sampled for the ACHF measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section. b. If ICD-9-CM Principal Diagnosis Code is on Table 2.1, continue processing and proceed to ICD-9-CM Principal or Other Procedure Codes. 3. Check ICD-9-CM Principal or Other

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
	not prescribing beta-blocker therapy]. If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. --Although the exception cases are removed from the denominator population for the performance calculation, the exception rate (ie, percentage with valid exceptions) should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI. If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure. No diagram provided	Procedure Codes a. If at least one of the ICD-9-CM Principal or Other Procedure Codes is on Table 2.2, the patient is not in the ACHF Initial Patient Population and is not eligible to be sampled for the ACHF measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section. b. If all of the ICD-9-CM Principal or Other Procedure Codes are missing or none are on Table 2.2, continue processing and proceed to the Patient Age Calculation. 4. Calculate Patient Age. Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age. 5. Check Patient Age a. If the Patient Age is less than 18 years, the patient is not in the ACHF Initial Patient Population and is not eligible to be sampled for the ACHF measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section. b. If the Patient Age is greater than or equal to 18 years, continue processing and proceed to Length of Stay Calculation. 6. Calculate the Length of Stay. Length of Stay, in days, is equal to the Discharge Date minus the Admission Date. 7. Check Length of Stay a. If the Length of Stay is greater than 120 days, the patient is not in the ACHF Initial Patient Population and is not eligible to be sampled for the ACHF measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
		Data Processing Flow: Clinical in the Data Transmission section. b. If the Length of Stay is less than or equal to 120 days, the patient is in the ACHF Initial Patient Population and is eligible to be sampled for the ACHF measure set. Set Initial Patient Population Reject Case Flag to equal No. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section. ACHF-01: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge Numerator: Patients who are prescribed bisoprolol, carvedilol, or sustained-release metoprolol succinate for LVSD at hospital discharge. Denominator: Heart failure patients with current or prior documentation of left ventricular ejection fraction (LVSD) < 40%. 1. Start processing. Run cases that are included in the ACHF Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Discharge Disposition. 3. Check Discharge Disposition a. If Discharge Disposition is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
		b. Discharge Disposition equals 2, 3, 4, 6 or 7, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Discharge Disposition equals 1, 5 or 8, continue processing and proceed to Comfort Measures Only. 4. Check Comfort Measures Only a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Comfort Measures Only equals 1, 2 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Comfort Measures Only equals 4, continue processing and proceed to LVSD <40%. 5. Check LVSD <40% a. If LVSD <40% is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If LVSD <40% equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If LVSD <40% equals Yes, continue processing and proceed to Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Prescribed for LVSD at Discharge. 6. Check Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Prescribed for LVSD at Discharge a. If Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Prescribed for LVSD at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Prescribed for LVSD at Discharge

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
		equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Prescribed for LVSD at Discharge equals No, continue processing and proceed to Reason for No Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Prescribed for LVSD at Discharge. 7. Check Reason for No Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Prescribed for LVSD at Discharge a. If Reason for No Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Prescribed for LVSD at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Reason for No Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Prescribed for LVSD at Discharge equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Reason for No Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Prescribed for LVSD at Discharge equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. Available at measure-specific web page URL identified in S.1
Submission items	5.1 Identified measures: 0070 : Coronary Artery Disease (CAD): Beta-Blocker Therapy-Prior Myocardial Infarction (MI) or Left Ventricular Systolic Dysfunction (LVEF <40%) 0071 : Persistence of Beta-Blocker Treatment After a Heart Attack 5a.1 Are specs completely harmonized? No	5.1 Identified measures: 0083 : Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD) 5a.1 Are specs completely harmonized? No

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
	5a.2 If not completely harmonized, identify difference, rationale, impact: Measure 0083 addresses a therapy which is also covered in part by the following NQF-endorsed measures: NQF 0071: Persistence of Beta-Blocker Treatment After a Heart Attack and NQF 0070: Coronary Artery Disease (CAD): Beta-Blocker Therapy—Prior Myocardial Infarction (MI) or Left Ventricular Systolic Dysfunction (LVEF <40%). The specifications are harmonized to the extent possible. However, measure 0083 is focused on a patient population with heart failure and therefore the denominator specifications for the measures differ. 5b.1 If competing, why superior or rationale for additive value:	5a.2 If not completely harmonized, identify difference, rationale, impact: The numerator and denominator statements are harmonized. Principal differences in measure specifications are noted below, and are thought to be artifacts of the different levels of measurement (organization vs. practitioner) addressed by the 2 measures. Differences ACHF-01 Denominator Exclusions: • Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code for LVAD and heart transplant as defined in Appendix A, Table 2.2) • Patients less than 18 years of age • Patients who have a Length of Stay greater than 120 days • Patients with Comfort Measures Only documented • Patients enrolled in a Clinical Trial • Patients discharged to another hospital • Patients who left against medical advice • Patients who expired • Patients discharged to home for hospice care • Patients discharged to a healthcare facility for hospice care • Patients with a documented Reason for No Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate Prescribed for LVSD at Discharge 0083 Denominator Exceptions: • Documentation of medical reason(s) for not prescribing beta-blocker therapy (eg, low blood pressure, fluid overload, asthma, patients recently treated with an intravenous positive inotropic agent) • Documentation of patient reason(s) for not prescribing beta-blocker therapy • Documentation of system reason(s) for not prescribing beta-blocker therapy Impact on interpretability and data collection burden: These two measures are

	0083: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	2438: Beta-Blocker Therapy (i.e., Bisoprolol, Carvedilol, or Sustained-Release Metoprolol Succinate) for LVSD Prescribed at Discharge
		specified to different levels of measurement (facility vs. practitioner). As such they are specified in order to be effectively and efficiently collected by the systems developed for each type of measure. Therefore, measure results should be easily interpretable with no adverse impact on data collection burden. 5b.1 If competing, why superior or rationale for additive value: Not applicable

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
Steward	Centers for Medicare & Medicaid Services (CMS)	Centers for Medicare & Medicaid Services	Agency for Healthcare Research and Quality
Description	The measure estimates a hospital-level 30-day risk-standardized mortality rate (RSMR). Mortality is defined as death for any cause within 30 days after the date of admission for the index admission, for patients 18 and older discharged from the hospital with a principal diagnosis of acute myocardial infarction (AMI). CMS annually reports the measure for patients who are 65 years or older and are either Medicare fee-for-service (FFS) beneficiaries and hospitalized in non-federal hospitals or are hospitalized in Veterans Health Administration (VA) facilities.	This measure estimates hospital 30-day risk-standardized mortality rates following admission for AMI using clinical information collected at presentation in an electronic health record (EHR). Mortality is defined as death from any cause within 30 days of the index admission date.	In-hospital deaths per 1,000 hospital discharges with acute myocardial infarction (AMI) as a principal diagnosis for patients ages 18 years and older.
Type	Outcome	Outcome	Outcome
Data Source	Administrative claims, Other, Paper Medical Records Data sources for the Medicare FFS measure: 1. Medicare Part A inpatient and Part B outpatient claims: This data source contains claims data for fee-for service inpatient and outpatient services including: Medicare inpatient hospital care, outpatient hospital services, skilled nursing facility care, some home health agency services, as well as inpatient and outpatient physician claims for the 12 months prior to an index admission. 2. Medicare Enrollment Database (EDB): This database contains Medicare beneficiary demographic, benefit/coverage, and vital status information. This data source was used to obtain information on several inclusion/exclusion indicators such as Medicare status on admission as well as vital status. These data have previously been shown to accurately reflect patient	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Laboratory, Other The data source for the measure will be the hospital EHR for clinical data, merged with CMS Medicare claims and enrollment data (or another external source of death data) for the 30-day mortality outcome. The data source for measure development was the ACTION Registry(R)–GWTG(TM) (an initiative of the American College of Cardiology Foundation and the American Heart Association, with partnering support from Society of Chest Pain Centers, The American College of Emergency Physicians, and The Society of Hospital Medicine), maintained by the National Cardiovascular Data Registry (NCDR(R)), for clinical data, merged with CMS Medicare claims and enrollment data for the	Administrative claims While the measure is tested and specified using data from the Healthcare Cost and Utilization Project (HCUP) (see section 1.1 and 1.2 of the measure testing form), the measure specifications and software are specified to be used with any ICD-9-CM-coded administrative billing/claims/discharge dataset with Present on Admission (POA) information. Note that in Version 5.0, the AHRQ QI software no longer supports prediction of POA status using an embedded prediction module. Users are

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
	vital status (Fleming et al., 1992). 3. Veterans Health Administration Data: This data source contains claims data for VA inpatient and outpatient services including: inpatient hospital care, outpatient hospital services, skilled nursing facility care, some home health agency services, as well as inpatient and outpatient physician claims for the 12 months prior to and including each index admission. Unlike Medicare FFS patients, VA patients are not required to have been enrolled in Part A and Part B Medicare for the 12 months prior to the date of admission. All-payer data sources: For our analyses to examine use in all-payer data, we used all-payer data from California in addition to CMS data for Medicare FFS 65+ patients in California hospitals. California is a diverse state, and, with more than 37 million residents, California represents 12% of the US population. We used the California Patient Discharge Data, a large, linked database of patient hospital admissions. In 2006, there were approximately 3 million adult discharges from more than 450 non-Federal acute care hospitals. Records are linked by a unique patient identification number, allowing us to determine patient history from previous hospitalizations and to evaluate rates of both readmission and mortality (via linking with California vital statistics records). Using all-payer data from California as well as CMS Medicare FFS data for California hospitals, we performed analyses to determine whether the AMI mortality measure can be applied to all adult patients,	30-day mortality outcome. No data collection instrument provided Attachment AMI_Mortality_eMeasure_Risk_model_coefficients.xlsx	expected to provide POA data. Available at measure-specific web page URL identified in S.1 Attachment Technical_Specs_IQI15_v5.0.xlsx

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
	including not only FFS Medicare patients aged 65+ but also non-FFS Medicare patients aged 65+ and younger patients aged 18-64 years at the time of admission. References: Fleming C, Fisher ES, Chang CH, Bubolz TA, Malenka DJ. Studying outcomes and hospital utilization in the elderly: The advantages of a merged data base for Medicare and Veterans Affairs hospitals. Medical Care. 1992; 30(5): 377-91. No data collection instrument provided Attachment AMI_Mortality_NQF_Data_Dictionary_06-22-15_FINAL.xlsx		
Level	Facility	Facility	Facility
Setting	Hospital/Acute Care Facility	Hospital/Acute Care Facility	Hospital/Acute Care Facility
Numerator Statement	The outcome for this measure is 30-day all-cause mortality. We define mortality as death from any cause within 30 days of the index admission date for patients 18 and older discharged from the hospital with a principal diagnosis of AMI.	The outcome for this measure is 30-day all-cause mortality. We define all-cause mortality as death from any cause within the 30 days after the index admission date.	Number of in-hospital deaths among cases meeting the inclusion and exclusion rules for the denominator.
Numerator Details	The measure counts deaths for any cause within 30 days of the date of admission of the index AMI hospitalization. Identifying deaths in the FFS measure As currently reported, we identify deaths for FFS Medicare patients 65 years and older in the Medicare Enrollment Database (EDB). Identifying deaths in the all-payer measure For the purposes of development, deaths were identified using the California vital statistics data file. Nationally, post-discharge deaths can be identified using an external source of vital status, such as the Social Security Administration's	The measure includes death from any cause within 30 days after the date of the index admission. Because this outcome will not be available from a hospital EHR, ascertainment of mortality will occur by linking to an external data source. For example, mortality could be obtained by linking with the Medicare Enrollment Database for Medicare patients or with another source of death data, such as the National Death Index or the Death Master File.	Number of deaths (DISP=20 in AHRQ's Healthcare Cost and Utilization Project datasets) among cases meeting the inclusion and exclusion rules for the denominator.

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
	Death Master File (DMF) or the Centers for Disease Control and Prevention's National Death Index (NDI).		
Denominator Statement	This claims-based measure can be used in either of two patient cohorts: (1) patients aged 65 years or older or (2) patients aged 18 years or older. The cohort includes admissions for patients discharged from the hospital with a principal discharge diagnosis of AMI and with a complete claims history for the 12 months prior to admission. Currently, the measure is publicly reported by CMS for those patients 65 years and older who are either Medicare FFS beneficiaries admitted to non-federal hospitals or patients admitted to VA hospitals. Additional details are provided in S.9 Denominator Details.	The cohort includes inpatient admissions for patients aged 65 years and older who were discharged from short-term acute care hospitals with a principal discharge diagnosis of AMI.	Discharges, for patients ages 18 years and older, with a principal ICD-9-CM diagnosis code for AMI.
Denominator Details	To be included in the measure cohort used in public reporting, patients must meet the following additional inclusion criteria: 1. Having a principal discharge diagnosis of AMI; 2. Enrolled in Medicare FFS; 3. Aged 65 or over; 4. Not transferred from another acute care facility; and 5. Enrolled in Part A and Part B Medicare for the 12 months prior to the date of index admission, and enrolled in Part A during the index admission. VA beneficiaries/hospitalizations are also included in the AMI mortality measure. Enrollment in Medicare FFS is not required for these patients. International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) codes used	The cohort includes inpatient admissions for patients aged 65 years and older who were discharged from a short-term acute care hospital with a principal discharge diagnosis of AMI, as identified by the value sets in the attached measure specifications file (Section S.2a).	ICD-9-CM AMI diagnosis codes (initial or unspecified episode of care): 41000 AMI ANTEROLATERAL, UNSPEC 41001 AMI ANTEROLATERAL, INIT 41010 AMI ANTERIOR WALL, UNSPEC 41011 AMI ANTERIOR WALL, INIT 41020 AMI INFEROLATERAL, UNSPEC 41021 AMI INFEROLATERAL, INIT 41030 AMI

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
	to define the cohort for each measure are: 410.00 AMI (anterolateral wall) – episode of care unspecified 410.01 AMI (anterolateral wall) – initial episode of care 410.10 AMI (other anterior wall) – episode of care unspecified 410.11 AMI (other anterior wall) – initial episode of care 410.20 AMI (inferolateral wall) – episode of care unspecified 410.21 AMI (inferolateral wall) – initial episode of care 410.30 AMI (inferoposterior wall) – episode of care unspecified 410.31 AMI (inferoposterior wall) – initial episode of care 410.40 AMI (other inferior wall) – episode of care unspecified 410.41 AMI (other inferior wall) – initial episode of care 410.50 AMI (other lateral wall) – episode of care unspecified 410.51 AMI (other lateral wall) – initial episode of care 410.60 AMI (true posterior wall) – episode of care unspecified 410.61 AMI (true posterior wall) – initial episode of care 410.70 AMI (subendocardial) – episode of care unspecified 410.71 AMI (subendocardial) – initial episode of care 410.80 AMI (other specified site) – episode of care unspecified 410.81 AMI (other specified site) – initial episode of care 410.90 AMI (unspecified site) – episode of care unspecified 410.91 AMI (unspecified site) – initial episode of care ICD-10 Codes that define the patient cohort:		INFEROPOST, UNSPEC 41031 AMI INFEROPOST, INITIAL 41040 AMI INFERIOR WALL, UNSPEC 41041 AMI INFERIOR WALL, INIT 41050 AMI LATERAL NEC, UNSPEC 41051 AMI LATERAL NEC, INITIAL 41060 TRUE POST INFARCT, UNSPEC 41061 TRUE POST INFARCT, INIT 41070 SUBENDO INFARCT, UNSPEC 41071 SUBENDO INFARCT, INITIAL 41080 AMI NEC, UNSPECIFIED 41081 AMI NEC, INITIAL 41090 AMI NOS, UNSPECIFIED 41091 AMI NOS, INITIAL

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
	I2109 ST elevation (STEMI) myocardial infarction involving other coronary artery of anterior wall I2119 ST elevation (STEMI) myocardial infarction involving other coronary artery of inferior wall I2111 ST elevation (STEMI) myocardial infarction involving right coronary artery I2119 ST elevation (STEMI) myocardial infarction involving other coronary artery of inferior wall I2129 ST elevation (STEMI) myocardial infarction involving other sites I214 Non-ST elevation (NSTEMI) myocardial infarction I213 ST elevation (STEMI) myocardial infarction of unspecified site An ICD-9 to ICD-10 crosswalk is attached in field S.2b. (Data Dictionary or Code Table).		
Exclusions	The mortality measures exclude index admissions for patients: 1. Discharged alive on the day of admission or the following day who were not transferred to another acute care facility. 2. With inconsistent or unknown vital status or other unreliable demographic (age and gender) data; 3. Enrolled in the Medicare hospice program or used VA hospice services any time in the 12 months prior to the index admission, including the first day of the index admission; or 4. Discharged against medical advice (AMA). For patients with more than one admission for a given condition in a	The measure excludes index admissions: 1) For patients who were discharged against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge); 2) For patients who were transferred in from another short-term acute care institution (because the death is attributed to the hospital where the patient was initially admitted); 3) With unreliable data (age >115 years); 4) That were not randomly selected from a patient's multiple qualifying AMI admissions in a year (because AMI patients may	Exclude cases: • transferred to another short-term hospital, for whom the outcome at hospital discharge was unknown • admitted for treatment of pregnancy, childbirth, and puerperium • with missing discharge disposition, gender, age, quarter, year, or principal diagnosis

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
	given year, only one index admission for that condition is randomly selected for inclusion in the cohort. For Medicare FFS patients, the measure additionally excludes admissions for patients without at least 30 days post-discharge enrollment in FFS Medicare (because the 30-day mortality outcome cannot be assessed in this group).	have multiple admissions in a year and the measure includes one randomly selected AMI admission per patient per year); 5) With unknown death (missing vital status) after linking to the Medicare Enrollment Database or other source of death data.	
Exclusion Details	1. The discharge disposition indicator is used to identify patients alive at discharge. Transfers are identified in the claims when a patient with a qualifying admission is discharged from an acute care hospital and admitted to another acute care hospital on the same day or next day. In addition, patient length of stay and condition is identified from the admission claim. 2. Inconsistent vital status or unreliable data are identified if any of the following conditions are met 1) the patient's age is greater than 115 years; 2) if the discharge date for a hospitalization is before the admission date; and 3) if the patient has a sex other than 'male' or 'female'. 3. Hospice enrollment in the 12 months prior to or on the index admission is identified using hospice data and the Inpatient standard analytic file (SAF). This exclusion applies when the measure is used in Medicare FFS patients only. 4. Discharges against medical advice (AMA) are identified using the discharge disposition indicator. Additional exclusions: • AMI admissions within 30 days of discharge from a qualifying index admission, which are identified by	Denominator exclusions, including discharges AMA and transfers in from another acute care institution, are identified using the value sets in the attached measure specifications file (section S.2a). Index admissions with unreliable data are identified and excluded if the patient's age is greater than 115 years, based on the calculation of patient age. Patient age is calculated based on birthdate (see value set in attached file). Patients with unknown death (missing vital status) are identified by linking to the Medicare Enrollment Database or other source of death data.	Exclude cases: • transferred to another short-term hospital (DISP=2) • with Major Diagnosis Category (MDC) 14 (pregnancy, childbirth, and puerperium) • with missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing)

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
	comparing the discharge date from the index admission with the readmission date. • Admissions without at least 30 days post-discharge enrollment in FFS Medicare, which is determined by examining the Medicare Enrollment Database (EDB)		
Risk Adjustment	Statistical risk model Our approach to risk adjustment is tailored to and appropriate for a publicly reported outcome measure, as articulated in the American Heart Association (AHA) Scientific Statement, "Standards for Statistical Models Used for Public Reporting of Health Outcomes" (Krumholz et. al., 2006). The measure employs a hierarchical logistic regression model to create a hospital level 30-day RSMR. In brief, the approach simultaneously models data at the patient and hospital levels to account for the variance in patient outcomes within and between hospitals (Normand & Shahian, 2007). At the patient level, the model adjusts the log-odds of mortality within 30-days of admission for age, sex, and selected clinical covariates. At the hospital level, the approach models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of a death at the hospital, after accounting for patient risk. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. Candidate and Final Risk-adjustment Variables: Candidate variables were patient-level risk-adjustors that were	Statistical risk model The measure estimates the hospital 30-day all-cause risk-standardized mortality rate (RSMR) using a hierarchical logistic regression model. In brief, the approach simultaneously models outcomes at two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand et al., 2007). To model the log-odds of 30-day all-cause mortality at the patient level, the model adjusts for age and selected clinical covariates. The second level models the hospital-specific intercepts as a normal distribution. The hospital intercept represents the underlying risk of mortality at the hospital after accounting for patient risk. The hospital-specific intercepts are given a distribution in order to account for the clustering (non-independence) of patients within the same hospital (Normand et al., 2007). The measure adjusts for the following key variables: Demographics: Age (continuous) Clinical condition on presentation: Heart rate (bpm) (continuous) Systolic blood pressure (mmHg) (continuous) Troponin ratio (initial troponin value (ng/ml)/hospital-specific	Statistical risk model The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age (in 5-year age groups), All Patient Refined Diagnosis Related Groups (APR DRGs) with Risk of Mortality (ROM) scores, Major Diagnosis Categories (MDC) based on the principal diagnosis, and transfer in from another acute care hospital. The expected rate is computed as the sum of the predicted value for each case divided by the number of cases for the unit of analysis of interest (i.e., hospital). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. The specific covariates

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	expected to be predictive of mortality, based on empirical analysis, prior literature, and clinical judgment including age, sex, and indicators of comorbidity and disease severity. For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. However, in the all-payer hospital discharge database measure, the risk-adjustment variables can be obtained only from inpatient claims in the prior 12 months and the index admission (this was tested explicitly in our all-payer testing, as many all-payer datasets do not include outpatient claims). The model adjusts for case-mix differences based on the clinical status of patients at the time of admission. We used condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis codes, and combinations of CCs as candidate variables (Pope et al., 2000). A file that contains a list of the ICD-9-CM codes and their groupings into CCs is attached in data field S.2b (Data Dictionary or Code Table). In addition, only comorbidities that convey information about the patient at admission or in the 12-months prior, and not complications that arise during the course of the hospitalization, are included in the risk-adjustment. Hence, we do not risk adjust for CCs that may represent adverse events of care and that are only recorded in the index admission. The final set of risk adjustment variables are: Demographics	upper limit of normal (ng/ml)) (continuous) Initial creatinine value (mg/dl) (continuous) Clinical risk-adjustment variables are the first values collected during the inpatient episode of care, including values collected in the emergency department prior to admission. Risk adjustment and measure score calculation will occur using aggregated data from all included sites. References: Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Available in attached Excel or csv file at S.2b	for this measure are as follows: Parameter Label Age 18 to 39 Age 40 to 44 Age 45 to 49 Age 50 to 54 Age 55 to 59 Age 65 to 79 Age 80 to 84 Age 85+ APR-DRG 161-(1-2) CARDIAC DEFIBRILLATOR & HEART ASSIST IMPLANT, Risk of mortality (ROM) 1 - 2 APR-DRG 161-(3-4) CARDIAC DEFIBRILLATOR & HEART ASSIST IMPLANT, Risk of mortality (ROM) 3 - 4 APR-DRG 162-(1,2)CARDIAC VALVE PROCEDURES W CARDIAC CATHETERIZATION, ROM 1 and 2 APR-DRG 162-3 CARDIAC VALVE PROCEDURES W CARDIAC CATHETERIZATION, ROM 3 APR-DRG 162-4 CARDIAC VALVE PROCEDURES W

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
	Male Age-65 (years above 65, continuous) for 65 and over cohorts; or Age (years, continuous) for 18 and over cohorts. Comorbidities Congestive heart failure (CC 80) Acute myocardial infarction (CC 81) Other acute/subacute forms of ischemic heart disease (CC 82) Anterior myocardial infarction (ICD-9 codes 410.00-410.19) Other location of myocardial infarction (ICD-9 codes 410.20-410.69) Coronary atherosclerosis or angina (CC 83, 84) Cardio-respiratory failure and shock (CC 79) Valvular and rheumatic heart disease (CC 86) Hypertension (CC 89, 91) Stroke (CC 95-96) Cerebrovascular disease (CC 97-99, 103) Renal failure (CC 131) Chronic obstructive pulmonary disease (COPD) (CC 108) Pneumonia (CC 111-113) Diabetes mellitus (DM) or DM complications except proliferative retinopathy (CC 15-20, 120) Protein-calorie malnutrition (CC 21) Dementia or other specified brain disorders (CC 49, 50) Hemiplegia, paraplegia, paralysis, functional disability (CC 67-69, 100-102, 177, 178) Vascular disease and complications (CC 104, 105) Metastatic cancer, acute leukemia and other severe cancers (CC 7, 8) Trauma in last year (CC 154-156, 158-162)		CARDIAC CATHETERIZATION, ROM 4 APR-DRG 165-(1,2) CORONARY BYPASS W CARDIAC CATH OR PERCUTANEOUS CARDIAC PROC, ROM 1 and 2 APR-DRG 165-3 CORONARY BYPASS W CARDIAC CATH OR PERCUTANEOUS CARDIAC PROC, ROM 3 APR-DRG 165-4 CORONARY BYPASS W CARDIAC CATH OR PERCUTANEOUS CARDIAC PROC, ROM 4 APR-DRG 173-(1-4) OTHER VASCULAR PROCEDURES, ROM 1-4 APR-DRG 174-2 PERCUTANEOUS CARDIOVASCULAR PROCEDURES W AMI, ROM 2 APR-DRG 174-3 PERCUTANEOUS CARDIOVASCULAR PROCEDURES W AMI, ROM 3 APR-DRG 174-4 PERCUTANEOUS CARDIOVASCULAR PROCEDURES W AMI, ROM 4 APR-DRG 190-1 ACUTE MYOCARDIAL INFARCTION, ROM 1 APR-DRG 190-2 ACUTE MYOCARDIAL

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
	Major psychiatric disorders (CC 54-56) Chronic Liver Disease (CC 25-27) History of CABG (ICD-9-CM V45.81, 36.10-36.16) History of PTCA (ICD-9-CM V45.82, 00.66, 36.01, 36.02, 36.05, 36.06, 36.07) References: Krumholz HM, Brindis RG, Brush JE, et al. 2006. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation 113: 456-462. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Pope GC, et al. 2000. Principal Inpatient Diagnostic Cost Group Models for Medicare Risk Adjustment. Health Care Financing Review 21(3): 93-118. Provided in response box S.15a		INFARCTION, ROM 2 APR-DRG 190-3 ACUTE MYOCARDIAL INFARCTION, ROM 3 APR-DRG 190-4 ACUTE MYOCARDIAL INFARCTION, ROM 4 MDC 5 CIRCULATORY SYSTEM, DISEASES & DISORDERS TRNSFER TRANSFER IN FROM ANOTHER ACUTE CARE HOSP (If ASOURCE='2' (Another Hospital) or POINTOFORIGINUB04='4' (Transfer from a Hospital), then TRNSFER=1) Source: http://qualityindicators.ahrq.gov/Downloads/Modules/IQI/V50/Parameter_Estimates_IQI_50.pdf.pdf Available in attached Excel or csv file at S.2b
Stratification	N/A	Results of this measure will not be stratified.	Not applicable
Type Score	Rate/proportion better quality = lower score	Rate/proportion better quality = lower score	Rate/proportion better quality = lower score
Algorithm	The measure estimates hospital-level 30-day all-cause RSMRs following hospitalization for AMI using hierarchical logistic regression models. In brief, the approach simultaneously models data at the patient and hospital levels to account for variance in patient	The measure score is calculated based on the following steps: 1. Patient cohort is identified based on the inclusion and exclusion criteria (see questions S.7, S.8, S.9, S.10, S.11); 2. Data elements for risk adjustment are collected using the	The observed rate is the number of discharge records where the patient experienced the QI adverse event divided by the number of discharge records at

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	outcomes within and between hospitals (Normand and Shahian, 2007). At the patient level, it models the log-odds of mortality within 30 days of discharge using age, sex, selected clinical covariates, and a hospital-specific intercept. At the hospital level, it models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of mortality at the hospital, after accounting for patient risk. The hospital-specific intercepts are given a distribution to account for the clustering (non-independence) of patients within the same hospital. If there were no differences among hospitals, then after adjusting for patient risk, the hospital intercepts should be identical across all hospitals. The RSMR is calculated as the ratio of the number of "predicted" to the number of "expected" deaths, multiplied by the national unadjusted mortality rate. For each hospital, the numerator of the ratio ("predicted") is the number of deaths within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the denominator ("expected") is the number of deaths expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case mix to an average hospital's performance with the same case mix. Thus, a lower ratio indicates lower-than-expected mortality or	first collected value, as detailed below; 3. Outcome is ascertained from an outside data source, such as the Medicare Enrollment Database (see questions S.4, S.5, S.6) 4. Measure score is calculated with aggregated data across all included sites, as described below. Measure calculation occurs outside of the EHR. Risk-adjustment Variables The measure is adjusted for the variables listed below; all variables are continuous: Age (years) Heart rate: HR<70 (bpm) Heart rate: HR>=70 (bpm) Systolic blood pressure (mmHg) Troponin ratio (ng/mL) Creatinine (mg/dL) Troponin ratio is derived for each patient as follows: initial troponin value/hospital-specific upper reference limit for troponin. All hospitals will provide the upper reference limit of troponin for their laboratory. To reduce the effect of spurious outliers, extreme values obtained for the risk-adjustment variables will be transformed by replacement with a value at the outer limit of a designated range by a process called Winsorization. Specifically, low and high outliers for the risk-adjustment variables will be Winsorized as follows: Age: no Winsorization Heart rate: low extreme values assigned to 40 bpm and high extreme values assigned to 140 bpm Systolic blood pressure: low extreme values assigned to 70	risk for the event. The expected rate is a comparative rate that incorporates information about a reference population that is not part of the user's input dataset – what rate would be observed if the expected level of care observed in the reference population and estimated with risk adjustment regression models, were applied to the mix of patients with demographic and comorbidity distributions observed in the user's dataset? The expected rate is calculated only for risk-adjusted indicators. The expected rate is estimated for each person using a generalized estimating equations (GEE) approach to account for correlation at the hospital or provider level. The risk-adjusted rate is a comparative rate that also incorporates information about a reference population that is not part of the input dataset – what rate would be observed if the level of care observed in the user's dataset were applied to a mix of patients with

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
	better quality and a higher ratio indicates higher-than-expected mortality or worse quality. The "predicted" number of deaths (the numerator) is calculated by using the coefficients estimated by regressing the risk factors and the hospital-specific intercept on the risk of mortality. The estimated hospital specific intercept is added coefficients multiplied by the patient characteristics. The results are transformed and summed over all patients attributed to a hospital to get a predicted value. The "expected" number of deaths (the denominator) is obtained in the same manner, but a common intercept using all hospitals in our sample is added in place of the hospital specific intercept. The results are transformed and summed over all patients in the hospital to get an expected value. To assess hospital performance for each reporting period, we re-estimate the model coefficients using the years of data in that period. This calculation transforms the ratio of predicted over expected into a rate that is compared to the national observed readmission rate. The hierarchical logistic regression models are described fully in the original methodology report (Krumholz et al., 2005). References: 1. Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22(2): 206-226. 2. Krumholz H, Normand S, Galusha D, et al. Risk-Adjustment Models for AMI and HF 30-Day Mortality Methodology. 2005. Available at measure-specific web page URL	mmHg and high extreme values assigned to 150 mmHg Troponin ratio: no Winsorization of low values; high extreme values assigned to 60 Creatinine: low extreme values assigned to 0.6 mg/dL and high extreme values assigned to 3 mg/dL Measure Score Calculation The RSMR is calculated as the ratio of the number of "predicted" to the number of "expected" deaths, multiplied by the national unadjusted mortality rate. For each hospital, the predicted hospital outcome (the numerator) is the sum of predicted probabilities of mortality for all patients at that particular hospital. The predicted probability for each patient in the hospital is calculated using the hospital-specific intercept (described in detail in the attached calculation algorithm) and patient risk factors. The expected hospital outcome (the denominator) is the sum of expected probabilities of mortality for all patients at a hospital. The expected probability of each patient in a hospital is calculated using a common intercept and patient risk factors. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case mix to an average hospital's performance with the same case mix. Thus, a ratio lower than one indicates a lower-than-expected mortality rate (or better quality), and a ratio greater than one indicates a higher-than-expected	demographics and comorbidities distributed like the reference population? The risk adjusted rate is calculated using the indirect method as observed rate divided by expected rate multiplied by the reference population rate. The smoothed rate is the weighted average of the risk-adjusted rate from the user's input dataset and the rate observed in the reference population; the smoothed rate is calculated with a shrinkage estimator to result in a rate near that from the user's dataset if the provider's rate is estimated in a stable fashion with minimal noise, or to result in a rate near that of the reference population if the variance of the estimated rate from the input dataset is large compared with the hospital-to-hospital variance estimated from the reference population. Thus, the smoothed rate is a weighted average of the risk-adjusted rate and the reference population rate, where the weight is the signal-to-noise ratio. In practice, the smoothed rate brings

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
	identified in S.1	mortality rate (or worse quality). Please see attachments for more details on the calculation algorithm and the value sets for the risk-adjustment variables. References: Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Available in attached appendix at A.1	rates toward the mean, and tends to do this more so for outliers (such as rural hospitals). For additional information, please see supporting information in the Quality Indicator Empirical Methods. No diagram provided
Submission items	5.1 Identified measures: 0330 : Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following heart failure (HF) hospitalization 0468 : Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following pneumonia hospitalization 0505 : Hospital 30-day all-cause risk-standardized readmission rate (RSRR) following acute myocardial infarction (AMI) hospitalization. 0506 : Hospital 30-day, all-cause, risk-standardized readmission rate (RSRR) following pneumonia hospitalization 0229 : Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following heart failure (HF) hospitalization for patients 18 and older 1551 : Hospital-level 30-day, all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA) 1789 : Hospital-Wide All-Cause Unplanned Readmission Measure (HWR) 1891 : Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) following Chronic Obstructive Pulmonary Disease	5.1 Identified measures: 0730 : Acute Myocardial Infarction (AMI) Mortality Rate 0230 : Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: The measure specifications are, by design, not completely harmonized in that the current measure uses clinical data elements collected from EHR for risk adjustment, and the measures listed above use claims data for risk adjustment. Additionally, the outcome in measure #0730 is inpatient mortality rather than 30-day mortality. Inpatient mortality rates can be influenced by hospital length of stay, so 30-day measures that establish a standard follow-up period are more appropriate for profiling a diverse group of hospitals (Drye et al., 2012). The measures listed above have target populations aged 18+, whereas the current measure's target	5.1 Identified measures: 0230 : Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older 2473 : Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: The indicators referenced above include 30-day mortality 1) for patients age 18 years and older 2) specified as an e-measure and 3) for patients age 65 and older. Inpatient mortality and 30-day mortality are different concepts, although

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
	(COPD) Hospitalization 1893 : Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization 2431 : Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for Acute Myocardial Infarction (AMI) 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: We did not include in our list of related measures any non-outcome (e.g., process) measures with the same target population as our measure. Our measure cohort was heavily vetted by clinical experts. Additionally, the measure, with the specified cohort, has been publicly reported since 2008. Because this is an outcome measure, clinical coherence of the cohort takes precedence over alignment with related non-outcome measures. Furthermore, non-outcome measures are limited due to broader patient exclusions. This is because they typically only include a specific subset of patients who are eligible for that measure (for example, patients who receive a specific medication or undergo a specific procedure). 5b.1 If competing, why superior or rationale for additive value: N/A	population is age 65+. The exclusion criteria of the current measure are largely similar to those of measure #0230. We recommend the endorsement of an additional AMI mortality measure. The current measure represents an opportunity to move toward the use of eMeasures developed de novo for use in EHRs. However, as the implementation of these measures may take some time to become a reality in the foreseeable future, we recommend the endorsement of the current measure in addition to the continued endorsement of existing claims-based measures. References: Drye EE, Normand SL, Wang Y, Ross JS, Schreiner GC, Han L, Rapp M, Krumholz HM. Comparison of hospital risk-standardized mortality rates calculated by using in-hospital and 30-day models: an observational study with implications for hospital profiling. Ann Intern Med. 2012 Jan 3;156(1 Pt 1):19-26. 5b.1 If competing, why superior or rationale for additive value: N/A	capturing the same ultimate outcome. Harmonization is not appropriate. 5b.1 If competing, why superior or rationale for additive value: IQI 15 and the Centers for Medicare & Medicaid Services' NQF-endorsed measures concerning AMI mortality (0230 and 2473) use the same ICD-9-CM codes to identify AMI, but they differ in two important respects: (1) whereas the CMS measures concern only Medicare fee-for-service and VA beneficiaries 65 years or older, IQI 15 measures mortality among hospitalizations of patients 18 years or older at non-federal acute care hospitals for all payers; and (2) while the CMS measures evaluate 30-day mortality, IQI 15—because it is based only on UB-04 data elements—is limited to inpatient mortality. The latter difference is a potential disadvantage in that the time at risk is not uniform for all patients and 30-day mortality is typically greater than inpatient mortality, but the

	0230: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older	2473: Hospital 30-Day Risk-Standardized Acute Myocardial Infarction (AMI) Mortality eMeasure	0730: Acute Myocardial Infarction (AMI) Mortality Rate
			former difference is an advantage because IQI 15 encompasses a greater proportion of the entire population at risk. We therefore believe that #0730 complements #0230 by offering an alternative specification for users who are interested in patients of all ages and all payers, just as #2473 offers an alternative e-measure specification for those with electronic health data.

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
Steward	Centers for Medicare & Medicaid Services	American College of Cardiology
Description	This measure calculates the percentage of stress echocardiography, single photon emission computed tomography myocardial perfusion imaging (SPECT MPI), or stress magnetic resonance (MR) imaging studies performed at each facility in the 30 days prior to an ambulatory non-cardiac, low-risk surgery performed at any location. The measure is calculated based on a one-year window of Medicare claims data. The measure has been publicly reported, annually, by the Centers for Medicare & Medicaid Services (CMS), since 2011, as a component of its Hospital Outpatient Quality Reporting (HOQR) Program.	Percentage of stress SPECT MPI, stress echo, CCTA, or CMR performed in low risk surgery patients for preoperative evaluation
Type	Efficiency	Efficiency
Data Source	Administrative claims This measure was initially constructed using the 100-percent FFS outpatient standard analytical files (SAFs) from 2009. These outpatient SAFs contain the claims data on imaging utilization and low-risk surgical procedures performed in hospital outpatient departments (including emergency department services), which are necessary to attribute the measure to specific facilities. Public reporting of the measure currently uses the 100 percent Medicare FFS outpatients SAFs from 2013 and 2014. No data collection instrument provided Attachment NQF_0669_Measure_Value_Sets_2015-06-30.xlsx	Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry Optimization of Patient Selection for Cardiac Imaging Available in attached appendix at A.1 Attachment Imaging-Efficiency-Measures-Micro-specifications_Measure_Maintenance-635231526161153276.doc
Level	Facility, Population : National, Population : State	Facility, Clinician : Group/Practice
Setting	Ambulatory Care : Clinician Office/Clinic, Hospital/Acute Care Facility, Imaging Facility	Ambulatory Care : Clinician Office/Clinic, Imaging Facility
Numerator Statement	The number of stress echocardiography, SPECT MPI, and stress MR studies performed in a hospital outpatient department within	Number of stress SPECT MPI, stress echo, CCTA, or CMR performed in patients undergoing low risk surgery as a part of the preoperative evaluation

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
	30 days of an ambulatory non-cardiac, low-risk surgery performed at any location (e.g., same hospital, other hospital, or physician office).	
Numerator Details	The numerator is defined by the following categories of surgical procedures: -Surgery/Integumentary System: Breast -Surgery/Respiratory System: Accessory Sinuses -Surgery/Respiratory System: Larynx -Surgery/Respiratory System: Trachea and Bronchi -Surgery/Respiratory System: Lungs and Pleura -Surgery/Digestive System: Esophagus -Surgery/Digestive System: Intestines (Except Rectum) -Surgery/Digestive System: Rectum -Surgery/Digestive System: Anus -Surgery/Digestive System: Biliary Tract -Surgery/Digestive System: Abdomen, Peritoneum, and Omentum -Surgery/Urinary System: Kidney -Surgery/Urinary System: Ureter -Surgery/Urinary System: Bladder -Surgery/Female Genital System: Cervix Uteri -Surgery/Female Genital System: Corpus Uteri -Surgery/Female Genital System: Oviduct/Ovary -Surgery/Eye and Ocular Adnexa: Anterior Segment -Other Surgeries (Specific CPT codes for each condition class are included in the value set for this measure; this detailed list can be found in the Excel workbook provided for Section S2b.)	Patients qualify this measure if: -an upcoming surgery is the recorded reason for the imaging test AND -no other reason is recorded for the imaging AND Surgery risk is low The following will be used to determine whether the risk of the surgery recorded is low: Surgical Risk Categories • Low-Risk Surgery– cardiac death or MI less than 1% including endoscopic procedures, superficial procedures, cataract surgery, breast surgery. Surgeries meeting this definition to be included in the measure are listed by CPT 4 Codes below. While additional surgeries may fit the low risk definition, only those surgeries listed below will be considered in determining inclusion in the numerator for this measure. Surgery/Integumentary System: Breast 19100 Biopsy of breast 19101 Biopsy of breast 19102 Bx breast percut w/image 19103 Bx breast percut w/device Surgery/Respiratory System: Accessory Sinuses 31231 Nasal endoscopy, dx 31233 Nasal/sinus endoscopy, dx 31235 Nasal/sinus endoscopy, dx 31237 Nasal/sinus endoscopy, surg 31238 Nasal/sinus endoscopy, surg 31239 Nasal/sinus endoscopy, surg 31240 Nasal/sinus endoscopy, surg 31267 Endoscopy, maxillary sinus 31276 Sinus surgical endoscopy 31299 Sinus surgery procedure Surgery/Respiratory System: Larynx 31505 Diagnostic laryngoscopy 31510 Laryngoscopy with biopsy 31511 Remove foreign body, larynx 31513 Injection into vocal cord 31515 Laryngoscopy for aspiration

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
		31520 Diagnostic laryngoscopy 31525 Diagnostic laryngoscopy 31526 Diagnostic laryngoscopy 31527 Laryngoscopy for treatment 31528 Laryngoscopy and dilatation 31529 Laryngoscopy and dilatation 31530 Operative laryngoscopy 31531 Operative laryngoscopy 31535 Operative laryngoscopy 31536 Operative laryngoscopy 31540 Operative laryngoscopy 31541 Operative laryngoscopy 31560 Operative laryngoscopy 31561 Operative laryngoscopy 31570 Laryngoscopy with injection 31571 Laryngoscopy with injection 31575 Diagnostic laryngoscopy 31576 Laryngoscopy with biopsy 31577 Remove foreign body, larynx 31578 Removal of larynx lesion 31579 Diagnostic laryngoscopy Surgery/Respiratory System: Trachea and Bronchi 31615 Visualization of windpipe 31620 Endobronchial us add-on 31622 Diagnostic bronchoscopy 31623 Dx bronchoscope/brush 31624 Dx bronchoscope/lavage 31625 Bronchoscopy with biopsy 31628 Bronchoscopy with biopsy 31629 Bronchoscopy with biopsy 31632 Bronchoscopy/lung bx, add'l 31633 Bronchoscopy/needle bx add'l 31645 Bronchoscopy, clear airways 31646 Bronchoscopy, reclear airways Surgery/Respiratory System: Lungs and Pleura 33508 Endoscopic vein harvest 37500 Endoscopy ligate perf veins 37501 Vascular endoscopy procedure 39400 Visualization of chest Surgery/Digestive System: Esophagus 43200 Esophagus endoscopy 43201 Esophagus endoscopy, w/submucous injection

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
		43202 Esophagus endoscopy, biopsy 43204 Esophagus endoscopy & inject 43205 Esophagus endoscopy/ligation 43215 Esophagus endoscopy 43216 Esophagus endoscopy/lesion 43217 Esophagus endoscopy 43219 Esophagus endoscopy 43220 Esophagus endoscopy, dilation 43226 Esophagus endoscopy, dilation 43227 Esophagus endoscopy, repair 43228 Esophagus endoscopy, ablation 43231 Esoph endoscopy w/us exam 43232 Esoph endoscopy w/us fn bx 43234 Upper GI endoscopy, exam 43235 Upper GI endoscopy, diagnosis 43236 Upper GI scope w/submuc inj 43237 Endoscopic us exam, esoph 43238 Upper GI endoscopy w/us fn bx 43239 Upper GI endoscopy, biopsy 43241 Upper GI endoscopy with tube 43242 Upper GI endoscopy w/us fn bx 43243 Upper GI endoscopy & inject. 43244 Upper GI endoscopy/ligation 43246 Place gastrostomy tube 43247 Operative upper GI endoscopy 43248 Upper GI endoscopy/guidewire 43249 Esophagus endoscopy, dilation 43260 Endoscopy, bile duct/pancreas 43261 Endoscopy, bile duct/pancreas 43262 Endoscopy, bile duct/pancreas 43263 Endoscopy, bile duct/pancreas 43264 Endoscopy, bile duct/pancreas 43265 Endoscopy, bile duct/pancreas 43267 Endoscopy, bile duct/pancreas 43268 Endoscopy, bile duct/pancreas 43269 Endoscopy, bile duct/pancreas 43271 Endoscopy, bile duct/pancreas 43272 Endoscopy, bile duct/pancreas Surgery/Digestive System: Intestines (Except Rectum) 44360 Small bowel endoscopy 44361 Small bowel endoscopy, biopsy 44363 Small bowel endoscopy

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
		44383 Ileoscopy w/stent 44385 Endoscopy of bowel pouch 44386 Endoscopy, bowel pouch, biopsy 44388 Colon endoscopy 44389 Colonoscopy with biopsy 44390 Colonoscopy for foreign body 44391 Colonoscopy for bleeding 44392 Colonoscopy & polypectomy 44393 Colonoscopy, lesion removal 44397 Colonoscopy w stent Surgery/Digestive System: Rectum 45300 Proctosigmoidoscopy 45303 Proctosigmoidoscopy 45305 Proctosigmoidoscopy; biopsy 45307 Proctosigmoidoscopy 45308 Proctosigmoidoscopy 45309 Proctosigmoidoscopy 45315 Proctosigmoidoscopy 45317 Proctosigmoidoscopy 45320 Proctosigmoidoscopy 45321 Proctosigmoidoscopy 45327 Proctosigmoidoscopy w/stent 45330 Sigmoidoscopy, diagnostic 45331 Sigmoidoscopy and biopsy 45332 Sigmoidoscopy 45333 Sigmoidoscopy & polypectomy 45334 Sigmoidoscopy for bleeding 45335 Sigmoidoscope w/submuc inj 45337 Sigmoidoscopy, decompression 45338 Sigmoidoscopy 45339 Sigmoidoscopy 45340 Sig w/balloon dilation 45341 Sigmoidoscopy w/ultrasound 45342 Sigmoidoscopy w/us guide bx 45345 Sigmoidoscopy w/stent 45378 Diagnostic colonoscopy 45379 Colonoscopy 45380 Colonoscopy and biopsy 45381 Colonoscope, submucous inj 45382 Colonoscopy, control bleeding 45383 Colonoscopy, lesion removal 45384 Colonoscopy 45385 Colonoscopy, lesion removal

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
		45387 Colonoscopy w/stent 45391 Colonoscopy w/endoscope us 45392 Colonoscopy w/endoscopic fnb Surgery/Digestive System: Anus 46600 Diagnostic anoscopy 46604 Anoscopy and dilation 46606 Anoscopy and biopsy 46608 Anoscopy; remove foreign body 46610 Anoscopy; remove lesion 46612 Anoscopy; remove lesions 46614 Anoscopy; control bleeding Surgery/Digestive System: Biliary Tract 47561 Laparo w/cholangio/biopsy Surgery/Digestive System: Abdomen, Peritoneum and Omentum 49322 – Laparoscopy, aspiration Surgery/Urinary System: Kidney 50551 Kidney endoscopy 50553 Kidney endoscopy 50555 Kidney endoscopy & biopsy 50557 Kidney endoscopy & treatment 50559 Renal endoscopy; radiotracer 50561 Kidney endoscopy & treatment • Surgery/Urinary System: Ureter 50951 Endoscopy of ureter 50953 Endoscopy of ureter 50955 Ureter endoscopy & biopsy 50970 Ureter endoscopy 50972 Ureter endoscopy & catheter 50974 Ureter endoscopy & biopsy 50976 Ureter endoscopy & treatment 50978 Ureter endoscopy & tracer 50980 Ureter endoscopy & treatment Surgery/Urinary System: Bladder 51715 Endoscopic injection/implant 52000 Cystoscopy 52001 Cystoscopy, removal of clots 52005 Cystoscopy & ureter catheter 52007 Cystoscopy and biopsy 52010 Cystoscopy & duct catheter 52204 Cystoscopy 52282 Cystoscopy, implant stent 52327 Cystoscopy, inject material

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
		52330 Cystoscopy and treatment 52351 Cystouretro & or pyeloscope 52352 Cystouretro w/stone remove 52353 Cystouretero w/lithotripsy 52354 Cystouretero w/biopsy 52355 Cystouretero w/excise tumor 52402 Cystourethro cut ejacul duct Surgery/Female Genital System: Cervix Uteri 57452 Examination of vagina 57454 Vagina examination & biopsy 57455 Biopsy of cervix w/scope 57456 Endocerv curettage w/scope 57460 Cervix excision 57461 Conz of cervix w/scope, leep Surgery/Female Genital System: Corpus Uteri 58555 Hysteroscopy, dx, sep proc 58558 Hysteroscopy, biopsy 58559 Hysteroscopy, lysis 58560 Hysteroscopy, resect septum 58562 Hysteroscopy, remove fb 58565 Hysteroscopy, sterilization Surgery/Female Genital System: Oviduct/Ovary 58670 Laparoscopy, tubal cautery 58671 Laparoscopy, tubal block Surgery/Eye and Ocular Adnexa: Anterior Segment 66820 Incision, secondary cataract 66821 After cataract laser surgery 66830 Removal of lens lesion 66982 Cataract surgery, complex 66983 Remove cataract, insert lens Other Surgeries: 14301 Skin Tissue Rearrangement 21011 Exc Face Les Sc< 2 cm 21012 Exc Face Les Sc=2 cm 21013 Exc Face Tum Deep < 2 cm 21014 Exc Face Tum Deep = 2 cm 21552 Exc Neck Les Sc = 3 cm 21554 Exc Neck Tum Deep = 5 cm 21558 Resect Neck Tum = 5 cm 21931 Exc Back Les Sc = 3 cm 21932 Exc Back Tum Deep < 5 cm 21933 Exc Back Tum Deep = 5 cm 22901 Exc Back Tum Deep = 5 cm

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
		22902 Exc Abdomen Les Sc < 3 cm 22903 Exc Abdomen Les Sc > 3 cm 23071 Exc Shoulder Les Sc > 3 cm 23073 Exc Shoulder Tum Deep > 5 cm 24071 Exc Arm/Elbow Les Sc = 3 cm 24073 Exc Arm/Elbow Tum Deep > 5 cm 25071 Exc Forearm Les Sc > 3 cm 25073 Exc Forearm Tum Deep = 3 cm 26111 Exc Hand Les Sc > 1.5 cm 26113 Exc Hand Tum Deep > 1.5 cm 27043 Exc Hip Pelvis Les Sc > 3 CM 27045 Exc Hip/Pelvis Tum Deep > 5 CM 27337 Exc Thigh/Knee Les Sc > 3 CM 27339 Exc Thigh/Knee Tum Deep >5CM 27632 Exc Leg/Ankle Les Sc > 3cm 27634 Exc Leg/Ankle Tum Deep >5 cm 28039 Exc Foot/Toe Tum Sc > 1.5 cm 28041 Exc Foot/Toe Tum Deep >1.5cm 29581 Apply Multilay Comprs Lower Leg 31626 Bronchoscopy w/ Markers 32552 Remove Lung Catheter 36147 Access AV Dial Grft for Eval 36148 Access AV Dial Grft for Proc 37761 Ligate Leg Veins Open 51727 Cystometrogram w/UP 51728 Cystometrogram w/VP 51729 Cystometrogram w/VP&UP 53855 Insert Prost Uretheral Stent 63661 Remove Spine El Trd Perq Aray 63662 Remove Spine El Trd Plate 63663 Revise Spine El Trd Perq Aray 63664 Revise Spine El Trd Plate Revised 64490 Inj Paravert F Jnt C/T 1 LEV 64493 INJ Paravert F JNT L/S 1 LEV 0213T US Facet JT INJ CERV/T 1 LEV 0216T US Facet JT INJ LS 1 LEVEL
Denominator Statement	The number of stress echocardiography, SPECT MPI, and stress MR studies performed in a hospital outpatient department on Medicare beneficiaries within a 12-month time window.	Number of stress SPECT MPI, stress echo, CCTA, and CMR performed
Denominator Details	The denominator is defined by the following CPT codes:	All consecutive stress SPECT MPI, stress echocardiography, CCTA, and CMR orders

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
	SPECT MPI CPT 78464, 78451, 78465, 78452 Stress Echocardiography CPT 93350 C8928 and 93351 C8930 Stress MR CPT 75559, 75560, 75563, 75564 Global and technical-component (TC) claims should be considered to capture all outpatient volume facility claims, typically paid under the Outpatient Prospective Payment System(OPPS)/Ambulatory Payment Classifications (APC) methodology, and to avoid double counting of professional-component claims (i.e., 26 modifier). A technical unit can be identified by a modifier code of TC. A global unit can be identified by the absence of a TC or 26 modifier code. SPECT MPI, stress echocardiography, and stress MR studies can be billed separately for the technical and professional components or billed globally, which includes both the professional and technical components. Professional component claims will outnumber technical component claims due to over-reads.	Measurement Entity: Imaging laboratory prospectively measured on test requisition forms and/or patient charts Level of Measurement/Analysis: Imaging laboratory* *Attribution for inappropriate use is shared between the ordering physician and imaging laboratory. In an ideal world, attribution to the ordering physician or institution, as well as the imaging laboratory, would be reflected in the reporting of these measures. However, there are numerous complexities that prevent assignment of these measures to individual ordering physicians. For example, ordering volumes from individual physicians and institutions are insufficient to make meaningful comparisons to allow such attribution. Thus, these measures will be reported at the level of the imaging laboratory. However, the extent to which the institution housing the imaging laboratory can impact these measures will be dependent upon cooperation of ordering physicians with the imaging laboratory.
Exclusions	Studies are excluded for any patients with diagnosis codes in at least three of the following categories: diabetes mellitus, renal insufficiency, stroke or transient ischemic attack, prior heart failure, or ischemic heart disease.	None.
Exclusion Details	Studies are excluded for any patients with diagnosis codes in at least three of the following categories: Diabetes (look back of one year) Diabetes mellitus ICD-9 codes 249, 250, and 648.0X ICD-10 codes E08.00-E13.9 Diabetes mellitus in pregnancy, childbirth, and the puerperium ICD-10 codes O24.011-O24.33, O24.811-O24.93 Renal Insufficiency (look back of one year)	None.

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
	Renal insufficiency ICD-9 codes 403, 404, 580, 582, 583, 584, 585, 586, and 593.9 Hypertensive chronic kidney disease ICD-10 codes I12.0-I12.9 Hypertensive heart and chronic kidney disease ICD-10 codes I13.0-I13.2 Glomerular diseases ICD-10 codes N00.0-N01.9, N03.0-N03.9, N05.0-N08 Acute kidney failure and chronic kidney disease ICD-10 codes N17.0-N19 Other disorders of kidney and ureter ICD-10 codes N28.9-N29 Stroke or transient ischemic attack (look back of three years) ICD-9 codes 430, 431, 432, 433, 434, 435, 436, 437, 438, 674.0X, and 997.02 Transient cerebral ischemic attacks and related syndromes ICD-10 codes G45.0-G45.2, G45.8-G45.9 Vascular syndromes of brain in cerebrovascular diseases ICD-10 codes G46.0-G46.2 Cerebrovascular diseases ICD-10 codes I60.00-I63.9, I65.21-I65.29, I66.01-I66.9, I67.1, I67.841-I67.89, I69.00-I69.998 Diseases of the circulatory system complicating pregnancy, childbirth and the puerperium ICD-10 codes O99.411-O99.43 Prior heart failure (look back of three years) Prior heart failure ICD-9 codes 425, 428, and 429 Other forms of heart disease ICD-10 codes I42.0-I43 Heart failure ICD-10 codes I50.1-I50.9 Intraoperative and post-procedural complications and disorders of	

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
	circulatory system, not elsewhere classified ICD-10 codes I97.0-I97.191 Complications and ill-defined descriptions of heart disease ICD-10 codes I51.0-I51.9 Ischemic heart disease (look back of three years) Ischemic heart disease ICD-9 codes 410, 411, 412, 413, and 414 ICD-10 codes I20.0-I22.9, I24.8-I25.119, I25.700-I25.799	
Risk Adjustment	No risk adjustment or risk stratification Not applicable; this measure does not risk adjust. Provided in response box S.15a	No risk adjustment or risk stratification None
Stratification	Not applicable; this measure does not stratify its results.	None
Type Score	Other (specify): Percentage better quality = lower score	Rate/proportion better quality = lower score
Algorithm	This measure calculates the percentage of SPECT MPI, stress echocardiography, or stress MR studies that are performed within the 30 days preceding a non-cardiac, low-risk surgery, out of all SPECT MPI, stress echocardiography, and stress MR studies performed. The measure is calculated based on one year of hospital outpatient claims data, as follows: 1. Select hospital outpatient claims with a CPT code for any SPECT MPI, stress echocardiography, or stress MR on a revenue line item 2. Exclude professional component only claims with modifier =´26´ 3. Exclude cases with three or more exclusion diagnoses occurring during the look back period for each diagnosis 4. Set denominator counter = 1 5. Set numerator counter = 1 if a non-cardiac, low-risk surgery occurs within the 30 days following the SPECT MPI, stress echocardiography, or stress MR from step 1, above	Locate all stress SPECT MPI, stress echocardiography, CCTA, and CMR orders performed during the sampling period. Record the total number of tests during the sampling period as the denominator. From this sets of test orders, identify orders containing the criteria listed in the numerator No diagram provided

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
	6. Aggregate denominator and numerator counts by Medicare provider number 7. Measure = numerator counts / denominator counts [The value should be recorded as a percentage] No diagram provided	
Submission items	5.1 Identified measures: 0670 : Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Although NQF #0669 is similar to NQF #0670, there are several differences that would make measure harmonization infeasible and reduce the effectiveness of both currently endorsed measures. First, the measures serve different target populations and purposes: the CMS measure is used for public reporting and the measure calculations only include CMS FFS claims; on the other hand, the ACC measure is not restricted to the Medicare population and the measure calculations are sold to hospitals as part of a quality improvement package, rather than used for public reporting. Second, the measures include different stress testing procedures: the ACC measure (NQF #0670) includes SPECT MPI, stress echocardiography, CCTA, and CMR procedures codes in the denominator, whereas the CMS measure (NQF #0669) includes SPECT MPI, stress echocardiography, and stress MR procedure codes. Finally, the ACC measure relies on a different data source than does the CMS measure: unlike the CMS measure, the ACC measure does not account for instances where the imaging and low risk surgery occur at different facilities.	5.1 Identified measures: 0669 : Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Different populations and data sources used 5b.1 If competing, why superior or rationale for additive value: This measure provides an additional level of analysis that applies not only to hospitals but also outpatient physician clinics. The data source also provides a richer source of clinical information to distinguish between testing ordered for preoperative assessment and other cardiovascular causes co-existing at the same time.

	0669: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low Risk Surgery	0670: Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients
	While NQF #0669 is related to the ICSI measure, significant structural differences makes measure harmonization inappropriate for these measures. The denominator of the ICSI measure is defined by low-risk surgery cases, whereas the denominator of the CMS measure is defined by cardiac imaging studies. The ICSI measure also relies on test results for measure calculation, a data element not available in CMS administrative claims data. Finally, the ICSI measure includes patients aged 2 years and older while the CMS measure is targeted to the Medicare population. 5b.1 If competing, why superior or rationale for additive value: We did not identify any competing measures that address both the same measure focus and target population as NQF #0669.	

	2763: Ischemic Vascular Disease Care: All or None Outcome Measure-Optimal Control	0076: Optimal Vascular Care
Steward	Wisconsin Collaborative for Healthcare Quality	MN Community Measurement
Description	The percentage of patients age 18 through 75 with one of the following conditions: 1) Two diagnoses related visits with Coronary Artery Disease (CAD) or a CAD risk-equivalent condition, or 2) Acute Coronary Event consisting of an acute myocardial infarction (AMI), coronary artery bypass graft (CABG), or percutaneous coronary intervention (PCI) from a hospital visit, who had each of the following during the one year measurement year: •Documentation in the medical record of daily Aspirin or daily other antiplatelet medication usage, unless contraindicated. •Most recent Blood pressure controlled to a level of less than 140/90 mm Hg •Most recent Tobacco Status is Tobacco-Free •Documentation in the medical record of Statin Use •All or None Outcome Measure (Optimal Control) composite of BP <140/90, Tobacco Non-User, Daily Aspirin or Other Antiplatelet and Statin Use. Patients are classified uniquely to one of the three condition subgroups in the order of Coronary Artery Disease, Coronary Artery Disease Risk-Equivalent condition, or Acute Coronary Event.	Percentage of adult patients ages 18 to 75 who have ischemic vascular disease with optimally managed modifiable risk factors (blood pressure, tobacco-free status, daily aspirin use).
Type	Composite	Outcome
Data Source	Administrative claims, Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry Data is obtained via data extracts (.csv files) from the practice and then uploaded into the WCHQ Repository Based Submission (RBS) database. Primary files consist of a Patient File, Encounter File, Problem List File, Clinical Data File, Tobacco File, Blood Pressure File and a Medication File. Certain data elements are cross-mapped to identify internal codes. The data is then	Electronic Clinical Data, Electronic Clinical Data : Electronic Health Record, Paper Medical Records An excel template with formatted columns for data fields is provided. Many medical groups extract the information from their EMR. Registries can be used as a source of information to create the data file; however groups must ensure that all of their eligible patients are included. Paper abstraction forms are provided for those clinics who wish to use them as an interim step to creating their data file. All data is uploaded in electronic format (.csv file) to a HIPAA secure, encrypted and password protected data portal.

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	calculated for the measure and is available with results at the group, clinic site and provider level. There is documentation provided describing the process of data submission and creation of the data files. This documentation is attached at A.1. Available in attached appendix at A.1 Attachment WCHQ_IVD_Care_Measure_Code_List.xlsx	URL Attachment Codes_and_Data_Dictionary_Optimal_Vascular_Care_-_0076_4-6-2014-635787771123676105.xlsx
Level	Clinician : Group/Practice	Clinician : Group/Practice
Setting	Ambulatory Care : Clinician Office/Clinic	Ambulatory Care : Clinician Office/Clinic
Numerator Statement	All-or-None Outcome Measure (Optimal Control) - Using the IVD denominator optimal results include: • Most recent blood pressure measurement is less than 140/90 mm Hg And • Most recent tobacco status is Tobacco Free NOTE: If there is No Documentation of Tobacco Status the patient is not compliant for this measure. And • Daily Aspirin or Other Antiplatelet Unless Contraindicated And • Statin Use	Patients ages 18 to 75 with ischemic vascular disease (IVD) who meet all of the following targets from the most recent visit during the measurement period: Blood Pressure less than 140/90, Tobacco-Free Status, Daily Aspirin Use (unless contraindicated).
Numerator Details	NOTE: All code tables and associated codes referenced in this document are included in the Excel File attached at step S2b. • DAILY ASPIRIN OR OTHER ANTIPLATELET MEDICATIONS THERAPY UNLESS CONTRAINDICATED (Figure IVD-2) This measure assesses the percentage of patients with documentation within the medical record of daily Aspirin or daily other antiplatelet agent at any time during the measurement period demonstrated through any of the following: 1. Documentation of an active prescription for daily Aspirin (see suggested list in Table IVD-6) or daily or other antiplatelet medications (see	Numerator for the Blood Pressure Component: Blood Pressure Date [Date (mm/dd/yyyy)] AND BP Systolic Value [Numeric] AND BP Diastolic Value [Numeric] Numerator calculation: numerator compliant is BP during the measurement period AND Systolic value is less than 140 AND Diastolic value is less than 90. Enter the date of the most recent Blood Pressure (BP) test date prior to and including 12/31/YYYY (measurement period). Enter the value of the most recent Blood Pressure (BP) prior to and including 12/31/ YYYY (measurement period). Numerator for the Tobacco Component: Tobacco Status Documentation Date [Date (mm/dd/yyyy)] AND Tobacco Status [Numeric]

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	acceptable medications in Table IVD-7) 2. Documentation on the patient's medication list of active daily usage of Aspirin (see suggested list in Table IVD-6) or daily other antiplatelet medications (see acceptable medications in Table IVD-7) 3. Contraindication to Aspirin a. Contraindications will count as numerator compliant. Any valid contraindication date prior to the end of the measure end date will count as compliant. There is no limit on the look back date, but the date of documentation or onset date must occur prior to the end of the measurement period. b. Accepted contraindications: i. History of gastrointestinal (GI) bleed (see codes in Table IVD-8) ii. History of intracranial bleed (ICB) (see codes in Table IVD-8) iii. History of GI Bleed or ICB from an ICD-9 diagnosis-based problem list or past medical history. There is no limit on the look back date, but the date of documentation or onset date must occur prior to the end of the measurement period. iv. Anticoagulant Use (see acceptable list of Medications in Table IVD-9). There must be documentation of an active anticoagulant at any time during the Measurement Period. • BLOOD PRESSURE CONTROL (Figure IVD-2) The number of patients in the denominator whose blood pressure (BP) is adequately controlled during the Measurement Period. Adequate control is a representative systolic Blood Pressure less than 140 mm Hg and a representative diastolic Blood Pressure less than 90 mm Hg. IDENTIFYING A REPRESENTATIVE BLOOD PRESSURE Blood Pressure Selection Criteria: a) Blood Pressure reading must have been obtained during the	1 = Tobacco Free (patient does not use tobacco) 2 = No Documentation 3 = Current Tobacco User Numerator calculation: numerator compliant is Value 1 = Tobacco Free AND the most recent date documentation of tobacco status Enter the most recent date prior to and including 12/31/YYYY (measurement period) that the patient's tobacco status was documented. Enter the most recent tobacco status prior to and including 12/31/YYYY (measurement period). Numerator for the Aspirin Component: Aspirin (ASA) Date [Date (mm/dd/yyyy)] Enter the most recent date of documented ASA or anti-platelet prior to and including 12/31/YYYY (measurement period). FYI: any documented date in the measurement period of ASA or an anti-platelet is acceptable; the date does not need to be the most recent. OR Aspirin (ASA) Contraindication Date [Date (mm/dd/yyyy)] If patient has a documented contraindication to ASA, enter the date of the contraindication. Any valid contraindication date will be given credit. Auditor must be able to validate this date. Accepted contraindications: • Anticoagulant use (see table below) • Any history of gastrointestinal (GI)* or intracranial bleed (ICB) • Allergy to ASA *Gastroesophogeal reflux disease (GERD) is not automatically considered a contraindication but may be included if specifically documented as a contraindication by the physician. The following may be exclusions if specifically documented by the physician: • Use of non-steroidal anti-inflammatory agents • Documented risk for drug interaction • Uncontrolled hypertension defined as >180 systolic, >110 diastolic • Other provider documented reason for not being on ASA therapy Numerator calculation: numerator compliant is Aspirin Use or documented contraindication for use of aspirin. Enter the date prior to and including 12/31/YYYY

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	Measurement Period. b) Systolic and Diastolic numbers must be from the same BP reading. c) A controlled BP requires that both the systolic and diastolic readings must be less than140/90. d) Exclusions: Inpatient Stays, Emergency Room Visits, Urgent Care Visits, and Patient Self-Reported BP's (Home and Health Fair Blood Pressures) e) Inclusions: Any office visit encounter, including Nurse Only BP Checks, not listed under Exclusions above. NOTE: A BP performed at a patient's home by a nurse who then inputs the result into an EMR counts as a Nurse Only BP. • Select the Blood Pressure from the most recent visit. • In the event that multiple Blood Pressures are recorded in the same day of service, select any reading that is controlled. If none are in control, select an uncontrolled reading. • If no Blood Pressure is recorded during the Measurement Period, the patient is assumed to be "not controlled". 3. TOBACCO FREE (Figure IVD-2) The number of patients in the denominator whose most recent tobacco documentation status with any provider within the 12 month measurement period is Tobacco Free. Tobacco Use Definition: • Cigarette • Cigar • Pipe Smoking • Smokeless Tobacco (Chewing Tobacco, Snuff, etc.) Tobacco Use Status can be identified by any of the following criteria: 1. Documentation stating that the patient has been asked if they are one of the following during the Measurement Period with the numerator compliant goal of Tobacco-Free: 1. Tobacco-Free (see examples	(measurement period) that the patient's Aspirin use or contraindication of Aspirin use was documented. Aspirin and Aspirin Containing Products: The intent of the daily aspirin component of this measure is to reduce further cardiovascular risk/ events for patients who have IVD. Unless contraindicated, taking daily aspirin or an anti-platelet medication can prevent the formation of clots by reducing platelet adhesion and reduce the risk of heart attack, stroke or other vascular events. Products containing solely aspirin, any dosage, can be counted as meeting the daily aspirin use. The following are a few combination products that are also acceptable for the intent of daily aspirin use: ? aspirin AND stomach acid reducer (buffered) ? aspirin AND nitrate (chest pain) ? aspirin AND statin However, not all products containing an aspirin derivative can be assumed to meet the intent of daily aspirin use. Most of these combination products would not be taken on a daily basis and should not be considered "daily aspirin use." Many of the combination products are intended to be used on an as needed basis for control of pain or cold/ flu symptoms. Combination products containing aspirin AND any of the following are NOT acceptable as meeting the intent of daily aspirin: ? acetaminophen ? caffeine ? narcotics ? muscle relaxants ? decongestants ? antihistamines Anti-Platelet Medications Anti-platelet medications (listed in the table below) may also be used to meet the intent of "daily aspirin use". Like aspirin products, these medications can prevent the formation of clots by reducing platelet adhesion. Oral Anti-Platelet Medications: aspirin and dipyridamole; Aggrenox® dipyridamole; Persantine® ticagrelor; Brilinta® cilostazol; Pletal® prasugrel; Effient® clopidogrel; Plavix®

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	below): a. Former tobacco user b. Never used c. Non-tobacco user d. Passive smoker 2. Non Tobacco-Free a. Current tobacco user 3. No Documentation: The subset of denominator patients who did not have documentation of tobacco status during the last 12 Months [Measurement Period] 2. ICD-9, CPT, HCPCS and CPT-II Codes indicating tobacco use status during the Measurement Period) from billing or encounter data only. Do not use the problem list for these codes. (Table IVD-10) 4. STATIN USE (Figure IVD-2) This measure assesses the percentage of patients with documentation within the medical record of statin use at any time during the measurement period demonstrated through any of the following: 1. Documentation of an active prescription for a statin (see acceptable medications in Table IVD-11) 2. Documentation on the patient's medication list of active usage of a statin (see acceptable medications in Table IVD-11) 5. ALL OR NONE OUTCOME MEASURE IVD All-or-None Measure The IVD All-or-None Measure is one outcome measure (optimal control). The measure contains four goals. All goals must be reached in order to meet that measure. The numerator for the all-or-none measure should be collected from the organization's total IVD denominator. All-or-None Outcome Measure (Optimal Control) - Using the IVD denominator optimal results include: • Most recent blood pressure measurement is less than 140/90 mm Hg	ticlopidine; Ticlid® Anti-Coagulant Medications Anti-coagulant medications, "blood- thinners", can frequently be a contraindication to taking daily aspirin or anti-platelet medication. This however is not an absolute contraindication as some patients on lower doses of warfarin and also safely take daily aspirin. If the patient is indeed taking daily aspirin in addition to an anti-coagulant, it is acceptable to submit as taking daily aspirin and not indicate a contraindication. Anticoagulant Medications: apixaban; Eliquis® rivaroxaban; Xarelto® dabigatran etexilate; Pradaxa® warfarin sodium; Coumadin®, Jantoven® enoxopren sodium; Lovenox®, Xaparin®, Clexane®

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	And • Most recent tobacco status is Tobacco Free NOTE: If there is No Documentation of Tobacco Status the patient is not compliant for this measure. And • Daily Aspirin or Other Antiplatelet Unless Contraindicated And • Statin Use	
Denominator Statement	Patients with CAD or a CAD Risk-Equivalent Condition 18-75 years of age and alive as of the last day of the MP.	Patients ages 18 to 75 with ischemic vascular disease who have at least two visits for this condition over the last two measurement periods and at least one visit in the last measurement period.
Denominator Details	NOTE: All code tables and associated codes referenced in this document are included in the Excel File attached at step S2b. Patients eligible for inclusion in the denominator include (See Figure IVD-1): [Question 1] – Is this a patient with the disease, or condition? CORONARY ARTERY DISEASE (OR CAD RISK EQUIVALENT) DIAGNOSIS RELATED OUTPATIENT VISITS Those patients with a total of two or more visits during the last 24 months [Measurement Period + Prior Year] from Table IVD-4 (Office Visit Encounter Codes-Outpatient) with any provider (MD, DO, PA, NP) within the Physician Group on different dates of service coded (including primary and secondary diagnoses) with diagnosis codes from Table IVD-1 (Coronary Artery Disease) or Table IVD-2 (CAD Risk-Equivalent Conditions). The following criteria apply: Any combination of two or more diagnosis codes from either Table IVD-1 or Table IVD-2, on different dates of service. OR ACUTE CORONARY EVENT- RELATED HOSPITAL VISITS	• Patient was age 18 to 75 at the start of the measurement period (date of birth was on or between 01/01/19yy to 01/01/19yy). • Patient was seen by an eligible provider in an eligible specialty face-to-face at least two times during the last two measurement periods (01/01/20yy to 12/31/20yy) with visits coded with an IVD ICD-9 diagnosis code (in any position, not only primary). Use this date of service range when querying the practice management or EMR system to allow a count of the visits within the measurement period. • Patient was seen by an eligible provider in an eligible specialty face-to-face at least one time during the measurement period (01/01/20yy to 12/31/20yy) for any reason. This may or may not include one of the face-to-face IVD visits. Please see attached code list provided in S.2.b Data Dictionary

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	Those patients who had a minimum of one hospital related visit (excluding Emergency and Lab Only visits) for an Acute Coronary Event from Table IVD-3 during the last 24 Months [Measurement Period + Prior Year]. [Question 2] – Is this a patient whose care is managed within the physician group? Those patients who have at least two Primary Care Office Visit (Table IVD-4) in an ambulatory setting, regardless of diagnosis code, on different dates of service, to a PCP or Cardiologist in the past 24 months [Measurement Period + Prior Year]. If Cardiologist is not considered a PCP, at least one of the two office visits must be to a PCP. [Question 3] – Is this a patient current in our system? Those patients who had at least one Primary Care Office Visit (Table IVD-4) in an ambulatory setting, regardless of diagnosis code, with a PCP or a Cardiologist during the last 12 Months [Measurement Period].	
Exclusions	There are no denominator exclusions	Valid exclusions include patients who had died during the measurement period, patients in hospice during the measurement period, patients who were permanent nursing home residents during the measurement period, or patients who were coded with IVD in error.
Exclusion Details	N/A	Patient died prior to the end of the measurement period Patient was in hospice at any time during the measurement period Patient was a permanent nursing home resident home during the measurement period Documentation that diagnosis was coded in error
Risk Adjustment	No risk adjustment or risk stratification N/A	Statistical risk model Risk adjustment observed to expected method based on the following variables: * insurance product * age bands Provided in response box S.15a
Stratification	This measure could be stratified by payer and this is documented in Appendix A of	The ischemic vascular disease population is not currently stratified.

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	the measure specification, however, WCHQ does not currently publicly report the measure in a stratified manner.	
Type Score	Other (specify): Percentage better quality = higher score	Weighted score/composite/scale better quality = higher score
Algorithm	NOTE: Flow diagrams outlining the measure logic are included in step S.19.below at A.1 and is also included in the measure specification on pages 4 and 8 available at the URL identified in S.1. The denominator algorithm is applied by identifying the target population based on codes and appropriate office visits during the designated timeframe. Once the denominator population has been identified the numerator logic is applied to all patients in the denominator to determine which patients meet each individual numerator and for the All or None measure which patients meet all four numerators for the timeframe. Available in attached appendix at A.1	This measure is calculated by submitting a file of individual patient values (e.g. blood pressure, LDL value, etc) to a HIPAA secure data portal. Programming within the data portal determines if each patient is a numerator case and then a rate is calculated for each clinic site. If any component of the numerator is noncompliant for any one of the four components, then the patient is numerator noncompliant for the composite all or none optimal vascular care measure. Numerator logic is as follows: Is Blood Pressure date in the measurement year? If yes, numerator is compliant for this component. If no, numerator is noncompliant for this component. Assess next variable. Is BP Systolic <140? If yes, numerator is compliant for this component. If no, numerator is noncompliant for this component. Assess next variable. Is BP Diastolic <90? If yes, numerator is compliant for this component. If no, numerator is noncompliant for this component. Assess next variable. Is Tobacco Status = 1 (Tobacco Free) and Tobacco Assessment Date a valid date? If yes, numerator is compliant for this component. If no, numerator is noncompliant for this component. Assess next variable. Is Aspirin Date in the measurement period? OR, Is Aspirin Contraindication Date a valid date? If yes, numerator is compliant for this component. If no, numerator is noncompliant for this component. Assess next variable. If all of the above numerator components are compliant, then the patient is calculated as a numerator case for the optimal vascular care measure.
Submission items	5.1 Identified measures: 0076 : Optimal Vascular Care 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized,	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact:

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	identify difference, rationale, impact: The measure specifications are very similar for three of the measure components, Daily Aspirin, Blood Pressure Control and Tobacco Free. However, the WCHQ measure also adds the Statin Use component which is a secondary prevention according to the AHA/ACC revised guidelines in November 2013. There are also some slight denominator differences in number and time frame of visits required. 5b.1 If competing, why superior or rationale for additive value: Because this measure includes the secondary prevention element of Statin Use from the updated AHA/ACC guidelines from November 2013. It also uses a denominator algorithm that allows patient level lists to be generated for internal practice quality improvement purposes.	5b.1 If competing, why superior or rationale for additive value: There are other similar measures that address three of the four components separately, but no measure exists that is a composite outcome measure. NQF # 0068 Ischemic Vascular Disease (IVD): Use of Aspirin or another Antithrombotic (NCQA) NQF # 0073 IVD: Blood Pressure Management (NCQA) NQF # 0075 IVD: Complete Lipid Profile and LDL Control <100 (NCQA) Related Measures: There are other similar measures that address three of the four components separately, but no measure exists that is a composite outcome measure. NQF # 0068 Ischemic Vascular Disease (IVD): Use of Aspirin or another Antithrombotic (NCQA) NQF # 0073 IVD: Blood Pressure Management (NCQA) NQF # 0075 IVD: Complete Lipid Profile and LDL Control <100 (NCQA)