NATIONAL QUALITY FORUM

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CARDIOVASCULAR ENDORSEMENT MAINTENANCE 2010: TECHNICAL REPORT

March 2012

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CARDIOVASCULAR ENDORSEMENT MAINTENANCE 2010
TECHNICAL REPORT

BACKGROUND

Measuring the quality of care for cardiovascular conditions is critically important. The human and financial costs of cardiovascular disease are enormous. Heart disease is the leading cause of death for men and women in the United States and cost the United States $316.4 billion in 2010. Hypertension affects 1 in 3 Americans, which increases their risk for heart disease, stroke, or kidney disease and will cost $76.6 billion in healthcare services, medications, and missed days of work.[1]

During the past nine years, the National Quality Forum (NQF) has endorsed a large number of consensus standards to evaluate the quality of care for cardiovascular conditions in the ambulatory and hospital settings. As the quality measurement enterprise has matured, better data systems have become available, electronic health records are closer to reality, and the demand for meaningful performance measures has prompted development of more sophisticated measures of healthcare processes and outcomes for cardiovascular disease. Evaluation of NQF-endorsed® cardiovascular measures and consideration of new measures will ensure the currency of NQF's portfolio of consensus standards.

When the Secretary of the Department of Health and Human Services announced the National Quality Strategy in March 2011, one of the initial priorities identified was "Promoting the Most Effective Prevention and Treatment of the Leading Causes of Mortality, Starting with Cardiovascular Disease." The NQF cardiovascular portfolio contains endorsed process and outcome measures that are being used to track performance and monitor improvements in the prevention and treatment of cardiovascular disease.

MEASURE EVALUATION

Using NQF's standard evaluation criteria, the Cardiovascular Steering Committee evaluated 20 new measures and 39 endorsed measures undergoing maintenance review for suitability as voluntary consensus standards for accountability and quality improvement. Within NQF's portfolio of endorsed cardiovascular measures, 41 additional measures endorsed after June 2008 (Appendix C) will undergo maintenance review in 2013.

Steering Committee work groups initially rated each measure for compliance with the sub-criteria. The entire Steering Committee evaluated each measure based on the four main criteria—importance to measure and report, scientific acceptability of the measure properties, usability, and feasibility. The Committee's evaluation summary tables begin on page 11.

Summary of Cardiovascular Endorsement Maintenance, 2010

	MAINTENANCE	NEW	TOTAL
Measures under consideration	45	20	65
Withdrawn from consideration	6		6
Recommended	32**	7	39
Reserve status	5		5
Not recommended	6	13	19
Reasons for not recommending	Importance – 5 Overall -1	Importance – 4 Scientific Acceptability-1 Overall -5 Components of composite not endorsed individually -3	

**** Measures 287 and 288, were combined into a single measure.**

OVERARCHING MEASURE EVALUATION ISSUES

During the Steering Committee's discussion of the measures, several overarching issues emerged and were factored into the Committee's ratings and recommendations for many measures.

Disparities

Most initial measure submissions did not provide data addressing disparities or did not sufficiently respond to the disparities questions on the measure submission form. The Committee established disparities as a major priority in the evaluation of measures and required information, and preferably data, on how each measure addresses disparities in order to be recommended for endorsement. Developers submitted additional data stratified by disparities when available.

Measures Demonstrating Very High Current Performance

The Committee noted that several measures have been publicly reported for several years and demonstrate very high performance and little variation such that there is no longer much opportunity for improvement. The Committee believed that removing endorsement from these evidence-based, reliable, and valid measures would send the wrong message and asked if there was an alternative designation.

In response to the Committee's concern, the NQF Board of Directors approved a policy in May 2011 that established a special category of endorsed measures with "reserve status." To be put on reserve status a measure must be highly credible, reliable, and valid and have high levels of

performance with little opportunity for improvement. These measures meet all of the NQF criteria except for sub-criterion (1b) relating to an opportunity for improvement. Performance can be reassessed in the future if necessary to ensure that performance does not decline. Five cardiovascular measures have been placed in reserve status.

Related and Competing Measures

The Committee noted that multiple measures addressed similar aspects of care, such as use of aspirin or beta blockers for secondary prevention of ischemic vascular disease, and repeatedly suggested that similar measures be consolidated into a single measure that can be used across settings and stratified into populations of interest. The Committee also noted that similar measures are not harmonized. The Committee used NQF's guidance for evaluating related and competing measures to further evaluate similar measures that meet NQF's evaluation criteria. The Committee reviewed side-by-side tables of related measures to select "best-in-class" among competing measures and to identify a need for harmonization for related measures. However, the Committee struggled with determining which measures were truly competing or just related, such as several measures that had similar numerator specifications and related but different denominators (coronary artery disease or ischemic vascular disease), and whether endorsing an all-or-none composite measure was preferred to endorsing individual measures for the components as well as the composite. Endorsing the composite measure only would reduce the need for harmonization of multiple individual measures, though many of the individual measures are in wide use and retooled for EHRs.

Harmonization

Because of the large number of similar and related measures, the Committee identified the need for harmonization for the majority of measures under review.

However, discussions with measure developers revealed significant challenges in achieving harmonization:

- Developers have different approaches and philosophies about measurement.
- Review and approval of all changes by a developer's technical panel and organizational leadership take significant time (sometimes several months).
- When there are several related measures, the determination of which measure should be the basis for harmonization may be difficult.
- Individual measures may be part of a group in use by the developer and changes may cause a measure to be out of alignment with that group.
- Trending data may be affected by changes in specifications.
- There may be disagreement as to what degree of alignment is needed to achieve harmonization.

As noted in the recent NQF Guidance on Harmonization report, harmonization is optimally achieved during development of measures rather than after they have been in use.

Conflicting Guidelines

The Committee noted that similar measures for intermediate outcomes such as blood pressure (BP) targets may be based on conflicting guidelines. The Committee recommended that all NQF-endorsed measures align to a single national guideline, such as the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC) for blood pressure measures and the National Heart, Lung, and Blood Institute's Expert Panel on the Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel [ATP]) for lipids.

Composite Measures

During this project several new composite measures were submitted for consideration. The Committee encouraged the development of more "all-or-none" composite measures, particularly for groups of processes of care applicable to most patients, such as discharge medications for acute myocardial infarction (AMI), percutaneous coronary intervention (PCI), and heart failure. In response to the Committee's suggestion, the American College of Cardiology Foundation quickly developed and tested two new all-or-none composite measures that were favorably reviewed by the Committee. The Committee identified additional potential composite measures that would enhance the cardiovascular portfolio.

Medication Management Measures

Committee members noted that medication management measures that evaluate adherence, such as medication possession ratio, are more meaningful measures of medication use for chronic conditions compared to those that capture a single prescription or dispensing of a medication.

Outcomes measures

The Committee supported NQF's move to more outcome measures and voiced support to broaden the denominator populations to include the largest number of appropriate patients whenever possible. The Committee re-evaluated revised outcome measures from the Center for Medicare and Medicaid Services (CMS) that had been tested on an all-payer dataset to expand the measures beyond the Medicare population.

RECOMMENDATIONS FOR FUTURE MEASURE DEVELOPMENT

During its discussion the Steering Committee identified important gap areas in the cardiovascular care episodes of care framework for further measure development:

- measures that assess functional status, stability, and symptom control based on patient reported data, particularly those that are likely to reduce emergency department (ED) visits and readmissions and improve quality of life;
- better measures of patient education and comprehension of self-management prior during transitions of care;
- measures of appropriateness and overuse, particularly of procedures;
- measures of shared decision-making;
- measures of appropriate referral, care coordination and transitions of care;
- patient safety measures such as adverse reactions to cardiac medications, for example, aspirin and warfarin use in patients with coronary artery disease (CAD) and atrial fibrillation (AF); upstream use of clopidogrel in sicker patients who then have complications at surgery; and angioedema with ACEI medications; and
- measures for effectiveness and outcomes of cardiac rehabilitation that are independent of linkage to a certifying organization.

Additionally the Committee offered approaches that would focus the cardiovascular portfolio on important aspects of care with fewer measures:

- expand the denominator populations whenever appropriate; e.g., ACEI/ARBs for all patients with LVSD, not just AMI+LVSD or HF+LVSD;
- consolidate measures, such as a single measure for BP control that can be applied to a variety of settings and can be stratified into populations of interest such as CAD or diabetes; and
- more all-or-none composite measures.

ENDORSED CONSENSUS STANDARDS

EVALUATION SUMMARY TABLES

CORONARY ARTERY DISEASE –SECONDARY PREVENTION

Endorsed measures:

0076 Optimal vascular care
Maintenance review For More Information: Detailed Measure Specifications; Complete Measure Submission;
Description: Percentage of adult patients ages 18 to 75 who have ischemic vascular disease with optimally managed modifiable risk factors (LDL, blood pressure, tobacco-free status, daily aspirin use). Numerator Statement: 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: LDL less than 100, Blood Pressure less than 140/90, Tobacco-Free Status, Daily Aspirin Use (unless contraindicated). Please note: On July 27,2010, the blood pressure component of this measure was changed for patients with a co-morbidity of diabetes (target less than 140/90). MNCM's technical advisory group recommended this change based on ACCORD results, ICSI's most recent guideline changes (July 2010), and the national meaningful use measures for diabetes blood pressure control. A target of less than 140/90 allows for individualization of patient goals. On March 9, 2011, the measurement and reporting committee reviewed recent ICSI guideline changes for blood pressure targets for stable coronary artery disease and hypertension and additionally considered the request of the NQF cardiovascular committee and decided to change the blood pressure target to < 140/90 for all IVD patients. Values are collected as the most recent during the measurement period (January 1 through December 31), with the exception of the LDL value which is collected over a 15 month time span to allow a greater window of time for patients that may not complete a cholesterol test within the 12 month time frame, but do complete a cholesterol test within 15 months (October 1 of the previous year through December 31 of the measurement year). Denominator Statement: Patients ages 18 to 75 with ischemic vascular disease who have at least 2 visits for this condition over the last 2 years (established patient) with at least 1 visit in the last 12 months. Exclusions: Valid exclusions include patients who only had one coded visit to the clinic during the last two years, patients who had died during the measurement period, patients who were 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. Adjustment/Stratification: Risk adjustment for this measure is based on case mix (health plan product). Health plan product was selected because it can serve as a proxy for socioeconomic status, if more specific variables are not available. Socioeconomic status can be a variable in a patient's ability to comply with a treatment plan for achieving the intermediate outcomes that can postpone or prevent the long term complications of cardiovascular disease. The overall average state-wide distribution of patients across three major insurance types (Commercial, Medicare and MN Healthcare Programs plus Self-pay/Uninsured) is calculated and then each reporting site's patient distribution is adjusted to match the average mix. Rates are re-weighted based on the new distribution of patients and then rates are re-calculated. Background and Evolution of Risk Adjustment: MN Community Measurement has been publicly reporting unadjusted ambulatory outcome rates at the clinic site level for several years dating back to 2004. Currently, the lowest level of reporting is at the clinic site and we do not publicly report any practitioner level information. As our state begins moving towards utilizing cost and quality measures to demonstrate value and utilizing these measures for incentive based payment and tiering by health plans, we began to explore risk adjustment of measures used for these purposes.

0076 Optimal vascular care

Our subcommittee of the Board of Directors, the Measurement and Reporting Committee (MARC) has reviewed several methods for risk adjusting these measures. Part of their discussion included the potential use of the risk adjusted measures for public reporting to consumers on our MN HealthScores website. The group agreed that risk adjustment would be more beneficial for tiering and incentive based programs and that there was value in reporting the unadjusted clinic site level rate for consumers for the following reasons: rates reflect actual performance, confusion for consumers in terms of explaining risk adjustment or displaying two rates (adjusted and unadjusted), or creating a mindset that it is acceptable for patients in public programs to have different treatment standards than those with commercial insurance.

There are no current plans to report risk adjusted data on our consumer facing website; however we will provide both adjusted and unadjusted clinic site level rates on our corporate website (pdf format).

Level of Analysis: Clinicians: Group/Practice Type of Measure: Outcome

Data Source: Paper medical record/flowsheet; Electronic Health/Medical Record; Registry data. 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.

Measure Steward: MN Community Measurement

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-20; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- All-or-none-composite of important care processes and intermediate outcomes.
- Patient-oriented measure; assesses whether an individual patient is meeting important targets.
- In use in Minnesota. Significant opportunity for improvement.

2. Scientific Acceptability of Measure Properties: C-1; P-13; M-5; N-2

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- BP target values have been changing due to recent studies but seem to be <140/90 for most patients. New JNC 8 guidelines are due to be released in early 2012, at which time the developer will modify the measure specifications accordingly if needed.

3. Usability: C-14; P-7; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Measure in use in Minnesota, reported by a large number of practices.
- There is a need for harmonizaton with measures that address the component elements..

4. Feasibility: C-18; P-3; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data are generated from the process of care and are easily extracted.
- Very few exclusions and contraindications have been included into the definitions.
- Data are carefully audited for inaccuracies, errors, and unintended consequences.

Does the Measure Meet Criteria for Endorsement: As submitted: Y-5, N-16

0076 Optimal vascular care

If developer changes BP target to <140/90: Y-19; N-1; A-0
Rationale: This measure meets criteria with conditions --if the specifications are changed to target BP<140/90.

If Applicable, Conditions/Questions for Developer:

- Change the BP target to <140/90. Response: MN Community Measurement agrees to align measures to JNC8 going forward. We took the Cardiovascular E&M Steering Committee's recommendation to modify the blood pressure target to <140/90 to our Measurement and Reporting Committee on March 9, and they approved this change. This modification is supported by the 2009 European Hypertension update (cited during the February 15 call), as well as ICSI Guidelines on Hypertension Diagnosis and Treatment, released in November 2010.

Evaluation of Competing and Related Measures

- 0073 IVD: Blood pressure management (NCQA)
- 0068 IVD: Use of aspirin or anti-thrombotics (NCQA)
- 0067 CAD: Anti-platelet therapy (PCPI)
- 0075 IVD: Complete lipid profile and LDL control <100 (NCQA)
- 0074 Chronic stable coronary artery disease: Lipid control (PCPI)

Several Committee members suggested that the composite measure 0076 would be sufficient to address the outcomes and processes of care for secondary prevention rather than endorsing multiple measures addressing the components that would need harmonization.

The Committee discussed the pros and cons of recommending the composite measure only versus the composite measure and individual component measures:

PROS

- The composite focuses on several factors that are all important to the individual patient in a single measure. This is a more challenging, but important, patient-focused goal.
- Reduces the number of measures in this topic area and eliminates redundancy.
- Eliminates the need for harmonization of multiple measures.
- Conserves opportunity/measurement costs.
- The Consensus Standards Approval Committee (CSAC) has been pushing for more challenging, broad, patient-focused measures, rather than continuing with numerous narrowly focused measures.
- Significant harmonization is needed among the individual measures.

CONS

- The individual measures, such as blood pressure control or aspirin use, may be important for end users as stand-alone measures.
- The individual measures that form the Minnesota Community measurement composite have not been evaluated as stand-alone measures and are not available for multiple users for public reporting or payment programs.
- The lack of uniform availability of an electronic platform necessitates maintenance of measures that can be obtained from different data sources (e.g., claims, EHRs, registries).
- The competing individual measures have been endorsed for several years and are in use in many large programs such as CMS's Physicians Quality Reporting System (PQRS) and NCQA HEDIS.
- Some of the individual measures have been re-tooled as eMeasures for meaningful use.

The Committee did not reach consensus on whether to recommend the composite measure 0076 only: Yes – 10, No-9

RECOMMENDATION: MAINTAIN ENDORSEMENT

The Committee noted that this measure contains all the elements of the national Million Hearts™ initiative.

Public and Member Comment

Comments included:

- Several comments support recommending the composite measure only, while several others recommended

0076 Optimal vascular care
supporting the individual component measures also. • Data collection and accessibility concerns. • Concern regarding public reporting and perceived lack of care that may be implied as a result of poor patient compliance. • Request for clarification of evidence that supports the use of assessment of blood pressure at the end of the year versus blood pressure monitoring that might take place throughout the course of the year. Developer Response: • MNCM does not recommend reporting this measure at the individual clinician level because of the potential for small volumes of patients that may limit the ability to publicly report results. • The measure uses a single data source from the clinic practice that may be abstracted from EHR or paper record. • All practices will have some patients who do not comply with provider recommendations, but removing these patients from the measure defeats the quality improvement purpose. A risk adjustment methodology is applied that uses insurance coverage as a proxy for socioeconomic status to help address potential disproportionate share of patients in poverty. • The most recent blood pressure reflects patient's current status and also allows time for response to treatment during the measurement period. Using the most recent blood pressure value also standardizes data collection. Steering Committee: Comments echo similar issues discussed by the Committee. No change to recommendation.

0073 IVD: Blood pressure management

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

Description: The percentage of patients 18 years of age and older who were discharged alive with acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary interventions (PCI) from January 1–November 1 of the year 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 BP reported as under control <140/90.

Numerator Statement: The numerator is the number of patients in the denominator whose most recent blood pressure is adequately controlled during the measurement year. For a patient's BP to be controlled, both the systolic and the diastolic BP must meet the desired threshold of <140/90 mm Hg.

Denominator Statement: Patients 18 years or older as of December 31 of the measurement year who were discharged alive for AMI, CABG or PCI on or between January 1 and November 1 of the year 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.

Exclusions: All patients with ESRD, who are pregnant or who had an admission to a non-acute inpatient setting during the measurement year.

Adjustment/Stratification: No risk adjustment necessary NA

Level of Analysis: Clinicians: Individual; Clinicians: Group Type of Measure: Intermediate Outcome

Data Source: Paper medical record/flow-sheet; Electronic administrative data/claims; Electronic clinical data; Electronic Health/Medical Record NA ; retooled eMeasure

Measure Steward: National Committee for Quality Assurance | 1100 13th Street NW, Suite 1000 | Washington | District Of Columbia | 20005

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Intermediate outcome measure.
- Extensive evidence of benefit for achieving blood pressure control in patients with ischemic vascular disease.
- The Committee questioned the evidence for BP target of < 140/80.
- Evidence base for elderly population and benefit of taking their systolic BP to less than 140 is lacking.
- Gap demonstrated with the 10th percentile being 28% and the 90th being 62%.

2. Scientific Acceptability of Measure Properties: C-0; P-16; M-4; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Concern regarding lack of inclusion of home blood pressure measurements.
- Measure submission included evidence supporting importance of excluding end stage renal disease patients from this measure; however, they are not listed as an exclusion in the measure specifications.

3. Usability: C-4; P-15; M-1; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Measuring blood pressure only once in the year after a procedure may not be very meaningful in patients with fluctuating BP.
- Step-wise process for identifying patients in medical records; this submission is a hybrid specification and a physician-level measure.

0073 IVD: Blood pressure management

4. Feasibility: C-5; P-13; M-2; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- Burden for public reporting purposes as it is a hybrid measure if only 50 percent of physicians' offices use electronic health records.

Does the Measure Meet Criteria for Endorsement: Deferred (Based on measure as submitted: Yes -8; No-12)

Rationale:

The Steering Committee deferred final evaluation of this measure citing several concerns:

- Remove 140/80 – lack of evidence for this target. (140/90 only is in retooled EHR specifications)
- Exclusions for elderly patients or patient's intolerance of lower BP.
- Home monitoring BP not included.
- Specifications for exclusion of ESRD not clear.

Responses from the Developer:

- NCQA withdraws the <140/80 threshold
- NCQA is very open to reconsideration when JNC8 guidelines are released.
- Will discuss home BP monitoring with NCQA's Committee on Performance Measures (CPM) again.

After reviewing the measure developer's responses, does the measure meet NQF's criteria for endorsement?

The Committee is very concerned with the lack of an upper age limit for this measure. Since NCQA indicated an openness to harmonization with measure 0076 that has an upper age limit of 75 years, the Committee considered harmonization as a condition on recommendation for endorsement:

Recommend as currently specified (BP <140/90, no age limits): Yes-3; No-9

Recommend ONLY IF the measure is harmonized with 0076 as to age (18-75 years): Yes-12; No-1

Developer response: NCQA is agreeable to harmonization, however, they point out that JNC8 guidelines are due in early 2012 and it doesn't make sense to make several changes in a short timeframe. They will discuss the upper age limit with the CPM with an overall good faith attempt to achieve harmonization in 2012.

RECOMMENDATION: MAINTAIN ENDORSEMENT and expect harmonization by mid-summer of 2012.

Public and Member Comment

Comments included:

- Measure specifications should be consistent with soon-to-be released guidelines from NIHs Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure that are expected in 2012.
- Should be harmonized with #0076 and include upper age limit of 75 years,
- Broad exclusions concerns.
- Favor the composite 0076 Optimal Vascular Disease measure rather than individual measures.

Measure Developer Response:

- Agree to align measure specifications with JNC8 when available in 2012.
- NQF's measure evaluation criteria encourages use of the broadest population, including age, as supported by the evidence. The evidence for an age limit of 75 years for the measures other than BP control is lacking.

Steering Committee: Directed the developers to work on harmonization. Discussions are ongoing with the developers with expected harmonization, including the ICD-10 transition, by the first annual update.

0068 Ischemic vascular disease (IVD): use of aspirin or another antithrombotic

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

Description: The percentage of patients 18 years and older with ischemic vascular disease who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG), or percutaneous coronary interventions (PCI) from January 1-November 1 of the year 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 the following during the measurement year.

-Use of aspirin or another antithrombotic

Numerator Statement: Use of aspirin or another antithrombotic.

Electronic Specification:

Documentation of use of aspirin or another antithrombotic during the measurement year. Refer to Table IVD-D to identify the code for prescribed oral anti-platelet therapy. Refer to Table IVD-E to identify medications for oral anti-platelet therapy.

Medical Record Specification:

Documentation of use of aspirin or another antithrombotic during the measurement year. At a minimum, documentation in the medical record must include a note indicating the date on which aspirin or another antithrombotic was prescribed or documentation of prescription from another treating physician.

Denominator Statement: Patients 18 years or older as of December 31 of the measurement year discharged alive for AMI, CABG, or PCI on or between January 1 and November 1 of the year 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.

Exclusions: None

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinicians: Individual; Clinicians: Group Type of Measure: Process

Data Source: Paper medical record/flowsheet; Electronic administrative data/claims; Electronic clinical data; Electronic Health/Medical Record NA ; retooled eMeasure

Measure Steward: NCQA

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Performance gap demonstrated. The 25th percentile has not broken 90%.
- Cost-effective.
- Solid evidence of benefit to patients.

2. Scientific Acceptability of Measure Properties: C-2; P-14; M-4; N-1

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Clearly specified with no significant exclusions.
- Sufficient supplemental reliability and validity documentation was provided.
- Title and description do not match numerator.
- According to the measure developer, exclusions for clinical reasons thought to be less than 5% aren't listed as an exclusion.

3. Usability: C-12; P-7; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Overlap with other measures using aspirin or other antithrombotics.

0068 Ischemic vascular disease (IVD): use of aspirin or another antithrombotic

4. Feasibility: C-13; P-7; M-1; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data will be generated as a byproduct of the care process during healthcare delivery as well as electronically.
- Important to note this measure has been retooled for meaningful use.

Does the Measure Meet Criteria for Endorsement: Y-20; N-1; A-0

Rationale:

- Important, effective care process.
- Gap in care— further opportunity for improvement.

If Applicable, Conditions/Questions for Developer:

- Title and description do not match numerator—developer clarified the description as above.
- Possible unintended consequences due to lack of exclusions

Developer response:

- While some exclusions may be coded and included in administrative data and are relatively easily accessible for chart review, a recent paper by Kmetik et al., indicates that most exclusions are relative. Many of the relative contraindications appear to be either minor in nature, or can be overcome by use of different medications. In terms of exceptions (patients removed from the denominator by the clinician at the time of service) , the same research showed that the rates of physician added exceptions were quite low, inconsistent in rate, and many had to come from extensive manual chart review even from an EMR.
    - Codes (like CPT-II codes) that might be used to indicate exceptions are not widely used, and at the present time cannot be easily audited for accuracy.
- In addition, the measure allows for physician discretion in prescribing alternative oral anti-platelet therapies when aspirin is contraindicated.
- The performance goal is not 100%.

Kmetik KS, O'Toole MF, Bossley H, Brutico CA, Fischer G, Grund SL, Gulotta BM, Hennessey M, Kahn S, Murphy KM, Pacheco T, Pawlson LG, Schaeffer J, Schwamberger PA, Scholle SH, Wozniak G. Exceptions to outpatient quality measures for coronary artery disease in electronic health records. Ann Intern Med. 2011 Feb 15;154(4):227-34.

- Harmonization with 0076 and 0067:

Developer response: NCQA is open to harmonizing this and other measures with other developers' measures and while in some other areas, PCPI and NCQA measures have been harmonized, no direct harmonization has been performed for CV measures at this time. NCQA and AMA PCPI-ACC/AHA have initiated discussions regarding harmonizing elements within this measure where there is potential for harmonization. Harmonization efforts will continue in areas of exclusions and whether it is possible (and/or alternative strategies) to harmonize denominator conditions (IVD vs. CAD) and the potential risks and benefits to populations being measured. There remain significant differences in the respective measures related to complexity, feasibility, standardization, and medication prescribing. As previously noted, the process for harmonization for most specifications must be carried out in a careful and deliberate manner since changes in specifications can affect both trending of results as well as affect completeness, accuracy and reliability of data collection.

Evaluation of Competing and Related Measures

- 0076 Optimal vascular care (MNCM)
- 0068 IVD: Use of aspirin or anti-thrombotics (NCQA)
- 0067 CAD: Anti-platelet therapy (PCPI)

0068 Ischemic vascular disease (IVD): use of aspirin or another antithrombotic

Several Committee members suggested that the composite measure 0076 would be sufficient to address the use of anti-thrombotics along with other important aspects of care. The Committee was divided and did not reach consensus on whether to recommend the composite only.

In comparing measures 0068 and 0067, some Committee members questioned whether these are really competing measures because they have different data collection methods, applicable settings, and exclusions and cover different patients. Additionally:

- IVD is a broader denominator that includes coronary artery disease (CAD), cerebrovascular disease (CVD) and peripheral vascular disease (PAD).
- The evidence for aspirin use is very strong for CAD and CVD, less so for PAD although the guidelines do recommend aspirin in PAD.
- 0067 allows for exclusions, such as warfarin use.

Vote to recommend for endorsement: Yes – 11, No -4

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

- Competing measures contain differences with respect to data collection methods, applicable settings, and exclusion criteria; however, it's important that the Steering Committee continue to work with developers of measures #0068, #0067, #0075 to determine the feasibility of harmonizing specifications of these measures where appropriate.
- Favor composite measure 0076 over the individual measures.
- Add BRILINTA (ticagrelor) to the list of oral anti-platelet agents.
- Encourage the measure developer to commit to develop an all-or-nothing composite for its IVD process measures in the near term.

Developer Response:

- Inclusion of Brilinta will be reviewed during our routine measure update process which includes review by our pharmacy panel.

Steering Committee: Urged the developers to work toward harmonization of the measures.

0067 Chronic stable coronary artery disease: Antiplatelet therapy

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

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.

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.

Denominator Statement: All patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12-month period.

Exclusions: Documentation of medical reason(s) for not prescribing aspirin or clopidogrel (e.g., allergy, intolerant, receiving other thienopyridine therapy, bleeding coagulation disorders, receiving warfarin therapy, 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 healthcare system).

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinicians: Individual; Clinicians: Group Type of Measure: Process

Data Source: Electronic administrative data/claims; Electronic clinical data; Electronic Health/Medical Record; Registry data. This measure, in its previous specifications, is currently being used in the ACCF PINNACLE registry for the outpatient office setting. Retooled eMeasure

Measure Steward: AMA PCPI

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Secondary prevention of coronary artery disease is a high impact aspect of healhcare.
- Quality gap has been extablished.
- This measured process leads to improved health outcomes.

2. Scientific Acceptability of Measure Properties: C-16; P-5; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Well-specified measure.
- Important to monitor the "other" exclusion option to prevent increasing percentages over time that may be misleading.

3. Usability: C-16; P-5; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Meaningful and easily understandable to providers and consumers.
- Not used yet in public reporting initatives. AHA's " Get With The Guidelines" uses this metric.
- Harmonization will need to be addressed.

4. Feasibility: C-19; P-2; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data elements are readily available and retreiveable.

0067 Chronic stable coronary artery disease: Antiplatelet therapy

- Exlcusions are available with routine evaluation of the data that exist.
- Retooled eMeasure.

Does the Measure Meet Criteria for Endorsement: Y-21; N-0; A-0

Rationale:

- High impact aspect of healthcare.
- Aspirin as part of a secondary prevention plan is a very important and proven intervention.
- Easy to understand and use this metric.

If Applicable, Conditions/Questions for Developer:

Harmonization with measures 0076 and 0068:

Developer Response: Upon original development of the measure set in 2003 and as part of the 2009 update, patients with chronic stable coronary artery disease were identified as the denominator for the measure set to be consistent with ACC/AHA clinical practice guidelines for patients with chronic stable angina which served as the primary evidence base to support measure development. The specific ICD-9 codes selected for CAD encompass all of the relevant codes in the 410-414 series, as well as procedure codes for patients who have undergone coronary bypass surgery or percutaneous coronary intervention.

The 410-414 series of codes have been previously identified by other sources, including the American Heart Association as part of their yearly statistical reports, as representative of patients with coronary heart disease.

The measure is limited to the only antiplatelet agents (i.e., aspirin and clopidogrel) recommended by the guideline, as follows: Aspirin should be started at 75 to 162 mg per day and continued indefinitely in all patients unless contraindicated (Class I Recommendation, Level A Evidence). Clopidogrel [is recommended] when aspirin is absolutely contraindicated (Class IIa Recommendation; Level of Evidence B).This represents an update to the previous version of the measure that allowed for aspirin, clopidogrel or a combination of aspirin and extended release dipyridamole and is consistent with changes to the evidence. The Work Group also included denominator exceptions for the measure so that physicians can exclude patients for whom aspirin or clopidogrel is not appropriate. If the patient has been prescribed another type of antithrombotic for valid reasons, the medical reason exception might apply.

Evaluation of Competing and Related Measures

- 0076 Optimal vascular care (MNCM)
- 0068 IVD: Use of aspirin or antithrombotics (NCQA)
- 0067 CAD: Anti-platelet therapy (PCPI)

Several Committee members suggested that the composite measure 0076 would be sufficient to address the use of anti-thrombotics along with other important aspects of care. The Committee was divided and did not reach consensus on whether to recommend the composite only. In comparing measures 0068 and 0067, some Committee members questioned whether these are really competing measures because they have different data collection methods, applicable settings, and exclusions and cover different patients.

- IVD is a broader denominator that includes coronary artery disease (CAD), cerebrovascular disease (CVD) and peripheral vascular disease (PAD).
- The evidence for aspirin use is very strong for CAD and CVD, less so for PAD though the guidelines do recommend aspirin in PAD.
- 0067 allows for exclusions, such as warfarin use.

Vote to recommend for endorsement: Yes – 12, No -3

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

0067 Chronic stable coronary artery disease: Antiplatelet therapy
• Concern with broad exclusions. • Data collection will be difficult for health plans. • Overlaps with measure 0068 which is in wide use in the private sector. • Composite measure 0076 is superior to this individual measure. • Wording should be changed to anti-platelet therapy rather than aspirin or clopidogrel. Developer Response: The level of analysis for this measure is individual clinician and groups, not health plans. The measure is limited to the only anti-platelet agents (i.e., aspirin and clopidogrel) recommended by the ACC/AHA clinical practice guidelines for patients with chronic stable angina which served as the primary evidence base to support measure development. Steering Committee: The Committee reviewed the comments and developer responses and again considered the issue of competing measures. Ultimately the Committee identified the measures as "overlapping" rather than competing. The Committee identified the narrow population (CAD rather than IVD) as a weakness of this measure.

0075 IVD: Complete lipid profile and LDL control <100

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

Description: The percentage of patients 18 years of age and older who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG), or percutaneous coronary interventions (PCI) from January 1–November 1 of the year prior to the measurement year, or who had a diagnosis of ischemic vascular disease (IVD) during the measurement year and the year prior to measurement year, who had each of the following during the measurement year.

• Complete lipid profile
• LDL-C control <100 mg/dL

Numerator Statement: A complete lipid profile performed during the measurement year. A LDL-C control result of <100mg/dL using the most recent LDL-C screening test during the measurement year.

Denominator Statement: Patients 18 years of age an older as of December 31 of the measurement year who were discharged alive for AMI, CABG, or PCI on or between January 1 and November 1 of the year 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.

Exclusions: None

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinicians: Individual; Clinicians: Group Type of Measure: Outcome

Data Source: Paper medical record/flowsheet; Electronic administrative data/claims; Electronic clinical data; Electronic Health/Medical Record; Lab data NA; retooled eMeasure

Measure Steward: NCQA

1. Importance to Measure and Report: Y-19; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Evidence-based, intermediate outcome.

2. Scientific Acceptability of Measure Properties: C-15; P-6; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Updated reliability testing is in process and currently not available.
- Clarifications needed in the specifications for the target population's age: 18 years and older or 18 years to 75 years.

3. Usability: C-20; P-0; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Already in use as part of HEDIS measures and will need to be harmonized with other lipid measures.
- Data are generated as a byproduct of care processes during delivery and are available as electronic data.

4. Feasibility: C-20; P-1; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Measure has been retooled for EHR meaningful use.

Does the Measure Meet Criteria for Endorsement: Y-21; N-0; A-0

Rationale:

- LDL <100 in IVD is an accepted standard backed by evidence.

0075 IVD: Complete lipid profile and LDL control <100

- There is a gap in performance.
- The measurement is being done, it is feasible, and improvement would likely lead to health benefits.

If Applicable, Conditions/Questions for Developer:

- What about intolerance to statins?

Developer Response: While some exclusions to statins are coded and included in administrative data and are relatively easily accessible for chart review, a recent paper by Kmetik et al., indicates that most exclusions are relative so that the majority of patients who have "contraindications" to statins are actually on statins. Many of the relative contraindications (muscle cramping, GI disturbance, etc.) appear to be either minor in nature, or can be overcome by use of different medications. In terms of exceptions (patients removed from the denominator by the clinician at the time of service), the same research showed that the rates of physician added exceptions were quite low, inconsistent in rate, and many had to come from extensive manual chart review even from an EMR.

In addition this measure is focused on reducing cholesterol, but is not prescriptive about the use of a statin. There are other mechanisms by which cholesterol reduction can be achieved (i.e., modifications in diet, exercise, etc.)

Evaluation of Competing and Related Measures

- 0076 Optimal vascular care (MNCM)
- 0075 IVD: Complete lipid profile and LDL control <100 (NCQA)
- 0074 Chronic stable coronary artery disease: Lipid control (PCPI)

Several Committee members suggested that the composite measure 0076 would be sufficient to address lipid lowering along with other important aspects of care. The Committee was divided and did not reach consensus on whether to recommend the composite only.

In comparing measures 0075 and 0074, some Committee members questioned whether these are really competing measures because they have different data collection methods, applicable settings, and exclusions and cover different patients.

Vote to recommend for endorsement: Yes – 9, No -6

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

- General support of the measure; importance of addressing individual physician performance, while 0076 only captures performance at group/practice level.
- Broad exclusions concerns.
- This measure includes a complete lipid profile while the PCPI measure does not require such a profile. It is unclear if it is better to require a complete lipid profile in the measure specification as both measures are seeking to measure LDL-control.
- Well established as PQRS measure and will be included in the 2012 PQRS.
- There is only limited infrastructure to know what hospital owned physicians prescribe and no infrastructure to know what private physicians are doing in their practices.
- Suggest adding LDL-C goal 70 mg/dL for those patients who are considered very high-risk.

Developer Response:

- We are now observing important initiatives focused on improving the flow of information between clinicians and facilities that are patient-centric and support quality care.
- During our regular measure re-evaluation process we will review current evidence-based guidelines to determine if

0075 IVD: Complete lipid profile and LDL control <100
changes to this measure are necessary. Steering Committee: The Steering Committee determined that measures 0075 and 0074 are overlapping but not competing. Each measure has strengths and weaknesses and the lack of exclusions for 0075 is a significant concern even though the measure has the larger denominator. Since one measure does not meet the measure evaluation criteria better than the other, the Committee could not determine a "best in class" using NQF's guidance.

0074 Chronic stable coronary artery disease: Lipid control

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

Previously endorsed measure 0074 was originally CAD: Drug therapy for lowering LDL-cholesterol *Percentage of patients with CAD who were prescribed a lipid – lowering therapy (based on current ACC/AHA guidelines)*. Original version is a retooled eMeasure.

Description: Percentage of patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12-month period who have a LDL-C result <100 mg/dL OR patients who have a LDL-C result ≥100 mg/dL and have a documented plan of care to achieve LDL-C <100mg/dL, including at a minimum the prescription of a statin.

Numerator Statement: Patients who have a LDL-C result <100 mg/dL OR

Patients who have a LDL-C result ≥100 mg/dL and have a documented plan of care* to achieve LDL-C <100 mg/dL, including at a minimum the prescription** of a statin within a 12-month period.

Definitions:

*Documented plan of care may also include: documentation of discussion of lifestyle modifications (diet, exercise); scheduled re-assessment of LDL-C.

**Prescribed may include prescription given to the patient for a statin at one or more visits in the measurement period OR patient already taking a statin as documented in current medication list.

Numerator Instructions:

The first numerator option can be reported for patients who have a documented LDL-C < 100 mg/dL at any time during the measurement period.

Denominator Statement: All patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12-month period.

Exclusions: Documentation of medical reason(s) for not prescribing a statin (e.g., allergy, intolerance to statin medication(s), other medical reasons).

Documentation of patient reason(s) for not prescribing a statin (e.g., patient declined, other patient reasons).

Documentation of system reason(s) for not prescribing a statin (e.g., financial reasons, other system reasons).

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinicians: Individual; Clinicians: Group Type of Measure: Process

Data Source: Electronic administrative data/claims; Electronic clinical data; Electronic Health/Medical Record; Registry data. This measure, in its previous specifications, is currently being used in the ACCF PINNACLE registry for the outpatient office setting.

Measure Steward: AMA PCPI

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-20; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Considerable evidence in terms of opportunity for improvement and impact.
- Performance gaps demonstrated across insured populations and across provider.
- A measure based on clinical guidelines.

2. Scientific Acceptability of Measure Properties: C-9; P-8; M-4; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Concerns regarding patient preference type or patient refusal type of exclusion; however, in general, exceptions are used rarely.

0074 Chronic stable coronary artery disease: Lipid control

3. Usability: C-6; P-11; M-4; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Deomonstrated through multiple quality improvement programs.
- Not in use for public reporting at this time, but will be in the future.
- Additive values need to be addressed, and measure will need to be harmonized with other lipid measures.

4. Feasibility: C-8; P-11; M-1; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data can be extracted electronically.

Does the Measure Meet Criteria for Endorsement: Y-17; N-4; A-0

Rationale:

- Opportunity for improvement.
- Evidence-based, outcome measure.

If Applicable, Conditions/Questions for Developer:

- How are patients who have not had an LDL test performed counted in the measure?

Developer Response: All patients aged 18 years and older with a diagnosis of coronary artery disease must have an LDL-C recorded in order to satisfy the measure. The measure specifications will be clarified that patients who have not had an LDL test performed would not meet the measure.

Evaluation of Competing and Related Measures

- 0076 Optimal vascular care (MNCM)
- 0075 IVD: Complete lipid profile and LDL control <100 (NCQA)
- 0074 Chronic stable coronary artery disease: Lipid control (PCPI)

Several Committee members suggested that the composite measure 0076 would be sufficient to address lipid lowering along with other important aspects of care. The Committee was divided and did not reach consensus on whether to recommend the composite only.

In comparing measures 0075 and 0074, some Committee members questioned whether these are really competing measures because they have different data collection methods, applicable settings, and exclusions and cover different patients.

Vote to recommend for endorsement: Yes – 14, No -1

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

- Broad exclusions concerns.
- Measure 0075 includes a complete lipid profile while this measure does not require such a profile. It is unclear if it is better to require a complete lipid profile in the measure specification as both measures are seeking to measure LDL-control
- Suggest adding LDL-C goal 70 mg/dL for those patients who are considered very high-risk.
- Consider expansion of measure to align with measure 0075, now widely used for Medicare PQRS IVD measures and measures groups and with NCQA Heart Stroke Recognition measures.

0074 Chronic stable coronary artery disease: Lipid control
• Encourage the Committee bypass this measure and to work with NCQA to broaden its measure 0075 to cover additional areas of interest. • Composite measure 0076 is superior for providing information to clinicians, stimulating practice redesign, and is more intuitive for patients • Consider changing term lipid-lowering to lipid-modifying, since some dyslipidemia treatments lower atherogenic as well as raise beneficial types of lipoprotein-cholesterol levels. Developer Response: • The data supporting specific lipid targets are weak and it would be challenging to identify the subpopulation of patients to whom this lower target may apply. • The measure focuses on LDL cholesterol given the efficacy and impact of LDL-lowering agents in decreasing the risk of adverse ischemic events in patients with established CAD. Steering Committee: The Steering Committee determined that measures 0075 and 0074 are overlapping but not competing. Each measure has strengths and weaknesses and the lack of exclusions for 0075 is a significant concern even though the measure has the larger denominator. Since one measure does not meet the measure evaluation criteria better than the other, the Committee could not determine a "best in class" using NQF's guidance.

0066 Chronic stable coronary artery disease: ACE inhibitor or ARB therapy—diabetes or left ventricular systolic dysfunction (LVEF <40%)

Maintenane review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

Description: 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 LVEF <40% who were prescribed ACE inhibitor or ARB therapy.

Numerator Statement: Patients who were prescribed ACE inhibitor or ARB therapy.*

*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 list.

Denominator Statement: All 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 LVEF <40%.

Exclusions: Documentation of medical reason(s) for not prescribing ACE inhibitor or ARB therapy (e.g., 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 (e.g., patient declined, other patient reasons.)

Documentation of system reason(s) for not prescribing ACE inhibitor or ARB therapy (e.g., lack of drug availability, other reasons attributable to the healthcare system).

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinicians: Individual; Clinicians: Group

Type of Measure: Process

Data Source: Electronic administrative data/claims; Electronic clinical data; Electronic Health/Medical Record; Registry data. This measure, in its previous specifications, is currently being used in the ACCF PINNACLE registry for the outpatient office setting. Retooled eMeasure

Measure Steward: AMA PCPI

1. Importance to Measure and Report: Y-18; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Very high impact and strong evidence for this measure.

2. Scientific Acceptability of Measure Properties: C-12; P-8; M-1; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Committee members asked why not include patients with coronary artery disease and hypertension, and patients with coronary artery disease and chronic kidney disease?
- "Most recent LVEF" would be better than "prior LVEF," particularly in recovery from STEMI.
- This is not a patient adherence measure but a provider adherence measure.
- A single point estimate is not ideal to measure medication use and adherence.

3. Usability: C-12; P-9; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Not yet publicly reported; however, it does have a signifigant amount of value if approved as it relates to clinical care.
- This measure should be harmonized with CMS/hospital measures.

4. Feasibility: C-13; P-8; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d.

0066 Chronic stable coronary artery disease: ACE inhibitor or ARB therapy—diabetes or left ventricular systolic dysfunction (LVEF <40%)

Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data for this measure are easily extractable.
- Concerns about relative contraindications; however, including an explicit list of contraindications increases abstraction burden and raises clinical acceptability issues.

Does the Measure Meet Criteria for Endorsement: Y-21; N-0; A-0

Rationale: An important clinical measure; however, a more stringent numerator criteria (i.e., must have X number of refills within defined time frame) would make it a stronger measure.

If Applicable, Conditions/Questions for Developer:

- Why are patients with CAD + hypertension or CAD + chronic kidney disease not included?—these are also indications for ACEI/ARB use.

Developer Response: Whereas the guidelines on which these measures are based list CAD with heart failure or diabetes as specific indications for ACEI, they do not explicitly recommend ARB for patients with HTN or CKD. Because this measure combines ACEI and ARB therapy, including HTN or CKD in the denominator would be problematic with respect to the underlying guideline support for the measure.

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

- Diabetics cannot take particular medications due to renal issues. In the excluded populations, diabetics are not listed.
- Suggest limiting to specific drugs that are FDA approved for use in HF/LVSD: ARBs: candesartan (has a mortality claim) and valsartan.
- An ARB should be used when available for black patients as ACEI in black patients cause more angioedema
- Exclusions should be narrowed as they are too broad at this time.

Developer Response:

- Rather than specifying an exhaustive list of explicit medical, patient, and system reasons for exception for each measure, the ACCF, AHA, and PCPI rely on clinicians to link the exception with a specific reason for the decision to not prescribe the therapy. Where examples of exceptions are included in the measure language, the PCPI has specified these reasons within the measure specifications; however this list is not intended to be an exhaustive list of reasons.
- The list of medications/drug names included in the measure specifications is based on clinical guidelines and other evidence. The specified drugs were selected based on the strength of evidence for their clinical effectiveness. Available data suggests that there are no differences among available ACEIs and ARBs in their effects on symptoms or survival.
- This measure is intended to encourage ACEI or ARB therapy in the treatment of patients with CAD and LVSD OR patients with CAD and diabetes.

Steering Committee: Reviewed comments and developer responses. No change to recommendations.

0071 Acute myocardial infarction (AMI): Persistence of beta-blocker treatment after a heart attack

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

Description: The percentage of patients age 18 years and older during the measurement year who were hospitalized and discharged alive July 1 of the year prior to the measurement year through June 30 of the measurement year with a diagnosis of acute myocardial infarction (AMI) and who received persistent beta-blocker treatment for six months after discharge.

Numerator Statement: A 180-day course of treatment with beta-blockers post discharge.

Denominator Statement: Patients 18 years and older as of December 31 of the measurement year discharged alive from an acute inpatient setting with an AMI from July 1 of the year prior to the measurement year through June 30 of the measurement year.

Exclusions: Exclude patients who are identified as having a contraindication to beta-blocker therapy or previous adverse reaction to beta-blocker therapy. Also exclude from the denominator hospitalizations in which the patient was transferred directly to a nonacute care facility for any diagnosis.

Adjustment/Stratification: No risk adjustment necessary NA None

Level of Analysis: Clinicians: Individual; Clinicians: Group; Health Plan Type of Measure: Process

Data Source: Paper medical record/flow-sheet; Electronic administrative data/claims; Pharmacy data; Electronic clinical data; Electronic Health/Medical Record NA

Measure Steward: National Committee for Quality Assurance | 1100 13th Street NW, Suite 1000 | Washington | District Of Columbia | 20005

STEERING COMMITTEE EVALUATION:

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- There is a significant performance gap for persistence of beta-blockers after acute myocardial infarction.
- High-level evidence for use of beta blockers for 1 year after AMI (Level A).

2. Scientific Acceptability of Measure Properties: C-8; P-11; M-2; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Very specific exclusion criteria. Discussion regarding whether the exclusion criteria are too strict.
- HEDIS health plan and clinician-level measure.

3. Usability: C-12; P-0; M-2; N-1

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- The measure is currently in use and publicly reported.
- No known issues on implementation.

4. Feasibility: C4; P-11; M-5; N-1

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- The data are generated as a byproduct of care proceses during care delivery
- The data elements are all collected electronically, but feasibility for a physician with paper records is questionable.
- Mainly based on pharmacy claims; regarding claims that aren't adjudicated or patients without insurance.

0071 Acute myocardial infarction (AMI): Persistence of beta-blocker treatment after a heart attack

Does the Measure Meet Criteria for Endorsement? Y-13; N-8; A-0

Rationale: Adherence is a better measure than a single point in time assessment. Beta blocker use in the 6-12 months after AMI is strongly evidence-based.

If applicable, Conditions/Questions for Developer:

- Clarify age specifications

Developer response: "The measure looks at patients 18 years and older".

Evaluation of Competing and Related Measures:

- 0070 CAD: Beta blocker—prior MI (AMA PCPI)
- 0072 CAD: Beta-blocker treatment after a heart attack (NCQA) —retired by developer in favor of 0071
- 0160 Beta blocker prescribed at discharge [for AMI] (CMS)

The Committee agreed that a measure of adherence to beta blockers after AMI is superior to measuring a single point in time and selected this measure, 0071, as "best-in-class for outpatient measures of beta blocker use. The related hospital measure, 0160, has very high current performance and is recommended for reserve endorsement.

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

- The facility can evaluate whether the patient has the resources to comply with medication recommendations and when available refer them to low-cost resources when they do not. The patient though is responsible for compliance. The facility and physicians can only control whether or not the beta-blocker treatment is prescribed.
- Support endorsement of this measure given a significant gap in performance.

Developer Response:

- The improvement in patient outcomes occurs only if the patients take the medication. Clinicians can greatly influence patient compliance.

Steering Committee: Agree with developer's response.

0070 Chronic stable coronary artery disease: Beta-blocker therapy--Prior myocardial infarction (MI) or left ventricular systolic dysfunction (LVEF <40%)

Maintenance review

For More Information: Complete Measure Submission;

Description: Percentage of patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12 month period who also have prior MI or a current or prior LVEF <40% who were prescribed beta-blocker therapy

Numerator Statement: Patients who were prescribed* beta-blocker therapy**

*Prescribed 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

** Beta-blocker therapy:

- •For patients with prior MI, no recommendations or evidence cited in current chronic stable angina guidelines for preferential use of specific agents
- •For patients with prior LVEF <40%, beta-blocker therapy should include bisoprolol, carvedilol, or sustained release metoprolol succinate

Denominator Statement: All patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12 month period who also have prior MI or a current or prior LVEF <40%

Exclusions: Documentation of medical reason(s) for not prescribing beta-blocker therapy (eg, allergy, intolerant, bradycardia, AV block without permanent pacemaker, arrhythmia, hypotension, asthma, other medical reasons)
Documentation of patient reason(s) for not prescribing beta-blocker therapy (eg, patient declined, other patient reasons)
Documentation of system reason(s) for not prescribing beta-blocker therapy (eg, other reasons attributable to the health care system

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinicians: Individual; Clinicians: Group

Type of Measure: Process

Data Source: Electronic administrative data/claims; Electronic clinical data; Electronic Health/Medical Record; Registry data
This measure, in its previous specifications, is currently being used in the ACCF PINNACLE registry for the outpatient office setting. Retooled eMeasure

Measure Steward: American Medical Association | 515 N. State St. | Chicago | Illinois | 60654

STEERING COMMITTEE EVALUATION:

1. Importance to Measure and Report: Y-17; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Cohort studies have demonstrated significant gaps in care regarding the measure.
- The measure takes into account specific beta blockers mentioned in the guidelines for patients with left ventricular systolic dysfuntion. However, data are lacking on beta blocker therapy with normal left ventricular function, more than three years after a myocardial infarction.

2. Scientific Acceptability of Measure Properties: C-4; P-9; M-2; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Measure can be modified to reflect any changes in the guideline recommendations.
- Exclusions include system reasons for not prescribing the beta blocker therapy. Examples provided: insurance, medication availability, and the availability of local cardiac rehabilitation programs.

3. Usability: C-9; P-10; M-2; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

0070 Chronic stable coronary artery disease: Beta-blocker therapy--Prior myocardial infarction (MI) or left ventricular systolic dysfunction (LVEF <40%)

- The measure is already in use but is not in any public reporting initiative.
- Useful measure if it can be revised as needed to be consistent with guidelines.

4. Feasibility: C-9; P-8; M-2; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- Data are generated as part of the care process and are sometimes available from the EHR.
- Sixty-four percent of the submissions were rejected due to an inaccurate diagnoses code. This was an implementation issue that has been addressed.

Does the Measure Meet Criteria for Endorsement? Y-17; N-4; A-0

Rationale: The measure reports performance that has a strong positive impact on lowering mortality among patients with chronic CAD and LVEF <40%. It is in use and feasibility has been documented. Abstraction of the paper record is prone to error, however.

If applicable, Conditions/Questions for Developer:

- What is the evidence for beta blocker use beyond 3 years?

Developer Response: The newly released AHA guidelines for the prevention of cardiovascular disease in women do note that "Beta-blockers should be used for up to 12 mo (Class I; Level of Evidence A) or up to 3 y (Class I; Level of Evidence B) in all women after MI or ACS with normal left ventricular function unless contraindicated." As a result of this change to the evidence base, the Work Group will be consulted and any necessary modifications will be made to the measure.

Evaluation of Competing and Related measures:

- 0071 AMI: Persistence of beta blocker therapy (NCQA)
- 0072 CAD: Beta-blocker treatment after a heart attack (NCQA) —retired by developer in favor of 0071
- 0160 Beta blocker prescribed at discharge [for AMI] (CMS)

The Committee agreed that a measure of adherence to beta blockers after AMI is superior to measuring a single point in time and selected measure, 0071, as "best-in-class for outpatient measures of beta blocker use. Measure 0160 is recommended for reserve endorsement.

INITIAL RECOMMENDATION: REMOVE ENDORSEMENT

Public and Member Comment

Comments included:

- Measure 0071 requires pharmacy data which is not available to clinicians. A clinician-level measure is needed for this process of care. Greater use of low-cost generic medications from discount pharmacies may not be captured in the pharmacy data collection.

Steering Committee: The Committee agreed these issues have merit and re-voted on recommending the measure: Y=8 , N=4 to recommend both 0070 and 0071

FINAL RECOMMENDATION: MAINTAIN ENDORSEMENT

Measures Not Recommended for Endorsement:

1486 Chronic stable coronary artery disease: Blood pressure control
New measure For More Information: Complete Measure Submission;
Description: Percentage of patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12-month period with a blood pressure <140/90 mm Hg OR patients with a blood pressure =140/90 mm Hg and prescribed 2 or more antihypertensive medications during the most recent office visit Numerator Statement: Patients with a blood pressure <140/90 mm Hg* OR Patients with a blood pressure =140/90 mm Hg and prescribed** 2 or more anti-hypertensive medications during the most recent office visit *BP value used for measure calculation: •Must be specified in medical record if >1 value (systolic/diastolic) recorded, and •Must be value upon which treatment decision was based, and •May be obtained by measurement during office visit or review of a home blood pressure log, OR of a 24-hour ambulatory blood pressure monitor, but the value on which the treatment decision is being made and which might represent the average of more than 1 reading must be documented as such in the medical record **Prescribed may include prescriptions given to the patient for two or more anti-hypertensive medications at most recent office visit OR patient already taking 2 or more anti-hypertensive medications as documented in current medication list. (Each anti-hypertensive component in a combination medication should be counted individually.) Instructions: All patients aged 18 years and older with a diagnosis of coronary artery disease must have a measurement of blood pressure recorded in order to satisfy the measure. Report number of patients for 1st numerator component (outcome) AND Report number of patients for 2nd numerator component (process) AND Report total number of patients for all numerator components Denominator Statement: All patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12-month period Exclusions: Documentation of medical reason(s) for not prescribing two or more antihypertensive medications (e.g., allergy, intolerant, postural hypotension, other medical reasons) Documentation of patient reason(s) for not prescribing two or more anti-hypertensive medications (e.g., patient declined, other patient reasons) Documentation of system reason(s) for not prescribing two or more antihypertensive medications (e.g., financial reasons, other reasons attributable to the healthcare delivery system) Adjustment/Stratification: No risk adjustment necessary Level of Analysis: Clinicians: Individual; Clinicians: Group Type of Measure: Process Data Source: Electronic administrative data/claims; Electronic clinical data; Electronic Health/Medical Record; Registry data Measure Steward: American Medical Association (AMA) PCI
1. Importance to Measure and Report: Y-19; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • The Committee agreed that blood pressure control in this population is extremely important. • The outcome target is consistent with guidelines, although there is no upper age limit in this measure. The Committee expressed concerns regarding appropriate treatment targets in the elderly. • The Committee questioned the scientific evidence supporting use of only two drugs. Many Committee members did not agree that two drugs were adequate attempts at BP control in some patients.

1486 Chronic stable coronary artery disease: Blood pressure control

2. Scientific Acceptability of Measure Properties: C-2; P-4; M-11 N-4

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Errors in measure submission form were addressed: developers confirmed that the numerator includes patients with BP ≥140/90.
- Testing has not been completed. No data were provided.

3. Usability: C-2; P-5; M-12; N-2

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Clear need for harmonization.
- Developer stated the measure will be revised to reflect guidelines changes or updates as needed.

4. Feasibility: C-11; P-9; M-0; N-1

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Measure includes exceptions that address end stage renal disease and elderly patients
-

Does the Measure Meet Criteria for Endorsement: Y-8; N-12; A-0

Rationale: Testing not completed.

RECOMMENDATION: NOT RECOMMENDED FOR ENDORSEMENT

Public and Member Comment

Comments included:

- Support for the steering committee's decisions to not recommend this measure for endorsement because testing for the measure has not been completed. Also problematic is that the measure combines an outcome and a process measure, and essentially gives physicians a pass for simply having prescribed medications when a patient's blood pressure isn't under control. Additionally, the exclusions are too broad.
- A letter requested reconsideration of four measures: Coronary Artery Disease and Heart Failure: Symptom and Activity Assessment Measures (NQF #'s 0065, 0077) and Coronary Artery Disease and Hypertension: Blood Pressure Control Measures (NQF #'s1486, 0013).

The Steering Committee noted that they have voted on this measure twice before and, in the absence of new information, declined to vote a third time. No reliability and validity testing data was presented, which was required for consideration of endorsement. The measure does not meet NQF's criteria for scientific acceptability.

0065 Chronic stable coronary artery disease: symptom and activity assessment

Maintenance review

For More Information: Complete Measure Submission;

Description: Percentage of patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12-month period for whom there is documented results of an evaluation of level of activity AND an evaluation of presence or absence of anginal symptoms in the medical record.

Numerator Statement: Patients for whom there are documented results of an evaluation of level of activity AND an evaluation of presence or absence of anginal symptoms* in the medical record.

*Evaluation of level of activity and evaluation of presence or absence of anginal symptoms should include:

•Documentation of Canadian Cardiovascular Society (CCS) Angina Class OR

•Completion of a disease-specific questionnaire (eg, Seattle Angina Questionnaire or other validated questionnaire) to quantify angina and level of activity.

Numerator Definition:

Canadian Cardiovascular Society (CCS) Angina Classification

Class 0: Asymptomatic

Class 1: Angina with strenuous exercise

Class 2: Angina with moderate exertion

Class 3: Angina with mild exertion

1. Walking 1-2 level blocks at normal pace
2. Climbing 1 flight of stairs at normal pace

Class 4: Angina at any level of physical exertion

Denominator Statement: All patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12-month period.

Exclusions: None

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinicians: Individual; Clinicians: Group Type of Measure: Process

Data Source: Electronic administrative data/claims; Electronic clinical data; Electronic Health/Medical Record; Registry data. This measure, in its previous specifications, is currently being used in the ACCF PINNACLE registry for the outpatient office setting.

Measure Steward: AMA

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-8; N-13

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Measure introduced as a means to ensure there was documentation of the symptom burden and the activity that precipitated those symptoms. Not an outcome measure.
- Evidence lacking; no documentation of gap.
- Testing data not provided.

Does the Measure Meet Criteria for Endorsement: No --Did not pass Importance to Measure and Report.

The developers submitted a letter to the Steering Committee disagreeing with the Committee's evaluation and requested a reconsideration of the measure evaluation citing the following:

- "a notable gap in patient-centric measures that would focus attention on patient-reported outcomes, including their symptoms, function and health-related quality of life"; and
- symptoms are an outcome and there are racial disparities in symptom management; they want to lay a foundation for future measures of efficacy and appropriateness.

0065 Chronic stable coronary artery disease: symptom and activity assessment
The Steering Committee agreed that the measure, as specified, is a process measure that is not linked to an intermediate or ultimate outcome. The measure was introduced as a means to ensure documentation of the patient burden and the activity that precipitated those symptoms, and the Committee additionally noted: • There is no reliability or validity data that say the results distinguish quality at the physician level. • Evidence is lacking. What is the data/evidence that doing an assessment alone is related to patient satisfaction, better outcomes, more or less angioplasty, or less AMIs? • What is the gap? General perception that clinicians are not doing this well. PINNACLE data = 85.5%. • Testing data not provided. Steering Committee re-vote on Importance: Yes – 4, No -11
RECOMMENDATION: REMOVE ENDORSMENT
Public and Member Comment Comments included: • Agreement with the reasons to remove endorsement from this measure. The Committee raises the important issue about the lack of evidence that assessment alone is related to patient satisfaction, better outcomes, more or less angioplasty, or less AMIs. • A letter requested reconsideration of this measure citing the same issues as above. The Steering Committee noted that they have voted on this measure twice before and, in the absence of new information, declined to vote a third time. No reliability and validity testing data was presented, which was required for consideration for endorsement. The measures do not meet NQF's criteria for scientific acceptability.

CORONARY ARTERY DISEASE—ACUTE PHASE: ACUTE MYOCARDIAL INFARCTION AND PERCUTANEOUS CORONARY INTERVENTION

Endorsed measures:

0289 Median time to ECG
Maintenance review For More Information: Detailed Measure Specifications; Complete Measure Submission;
Description: Median time from emergency department arrival to ECG (performed in the ED prior to transfer) for acute myocardial infarction (AMI) or chest pain patients (with probable cardiac chest pain). Numerator Statement: Continuous Variable Statement: Time (in minutes) from emergency department arrival to ECG (performed in the ED prior to transfer) for acute myocardial infarction (AMI) or chest pain patients (with Probable Cardiac Chest Pain). Included Populations: • ICD-9-CM Principal or other diagnosis code for AMI as defined in Appendix A1, OP Table 6.1, or an ICD-9-CM Principal or other diagnosis code for angina, acute coronary syndrome, or chest pain as defined in Appendix A1, OP Table 6.1a, and • E/M Code for emergency department encounter as defined in Appendix A1, OP Table 1.0a, and • Patients receiving an ECG as defined in the Appendix A1, and • Patients discharged/transferred to a short term general hospital for inpatient care, to a Federal healthcare facility, or to a critical access hospital. Denominator Statement: Continuous Variable Statement: Time (in minutes) from emergency department arrival to ECG (performed in the ED prior to transfer) for acute myocardial infarction (AMI) or chest pain patients (with probable cardiac chest pain) Exclusions: Patients less than 18 years of age. Adjustment/Stratification: No risk adjustment necessary Level of Analysis: Facility/Agency; Population: national Type of Measure: Process Data Source: Paper medical record/flow-sheet; Electronic administrative data/claims; Electronic Health/Medical Record N/A Measure Steward: Centers for Medicare & Medicaid Services (CMS)
STEERING COMMITTEE EVALUATION
1. Importance to Measure and Report: Y-17; N-4 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • Large variation in performance in emergency departments . • Questions raised regarding using the measure of median time as being useful and meaningful as an indicator of performance in an emergency department. • What is the evidence for other conditions besides STEMI? • Highest mismatched data element on measure was probable cardiac chest pain. Physician educational sessions and a quality assurance program have been implemented to help reduce error.
2. Scientific Acceptability of Measure Properties: C-7; P-10; M-4; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: • Steering Committee requested to have disparities information included. • Concerns regarding reliability and validity. Time stamps on ECG machines are often inaccurate and are not as reliable as time stamps for arrival to ED or for administration of therapy.

0289 Median time to ECG

3. Usability: C-7; P-12; M-2; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Currently being used in outpatient quality data programs.
- Patients not transferred are not included.

4. Feasibility: C-11; P-8; M-2; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data are generated as a byproduct of care.

Does the Measure Meet Criteria for Endorsement: Y-17; N-2; A-0

Rationale:

- Important time marker in patients to be transferred. Not as important for patients who will get PCI or fibrinolytic therapy at the same location because this time is included in other measures.

If Applicable, Conditions/Questions for Developer:

- What is the evidence for patients other than STEMI needing urgent evaluation?

Response: Current guidelines from the ACCF/AHA for STEMI note that ECG should be completed within 10 minutes for patients with persistent chest pain. You cannot diagnosis a STEMI until the ECG is completed.

- Where is Appendix A, OP Table 1.1 referred to in the submission?

Response: Appendix A 1.1 (Acute Myocardial Infarction Diagnosis Codes) is with the previously submitted documents. The table includes codes: 410.00 Anterolateral wall, acute myocardial infarction—episode of care unspecified

410.01 Anterolateral wall, acute myocardial infarction—initial episode
410.10 Other anterior wall, acute myocardial infarction—episode of care unspecified
410.11 Other anterior wall, acute myocardial infarction—initial episode
410.20 Inferolateral wall, acute myocardial infarction—episode of care unspecified
410.21 Inferolateral wall, acute myocardial infarction-initial episode
410.30 Inferoposterior wall, acute myocardial infarction—episode of care unspecified
410.31 Inferoposterior wall, acute myocardial infarction—initial episode
410.40 Other inferior wall, acute myocardial infarction—episode of care unspecified
410.41 Other inferior wall, acute myocardial infarction—initial episode
410.50 Other lateral wall, acute myocardial infarction—episode of care unspecified
410.51 Other lateral wall, acute myocardial infarction—initial episode
410.60 True posterior wall, acute myocardial infarction—episode of care unspecified
410.61 True posterior wall, acute myocardial infarction—initial episode
410.70 Subendocardial, acute myocardial infarction—episode of care unspecified
410.71 Subendocardial, acute myocardial infarction—initial episode
410.80 Other specified sites, acute myocardial infarction—episode of care unspecified
410.81 Other specified sites, acute myocardial infarction—initial episode
410.90 Unspecified site, acute myocardial infarction—episode of care unspecified
410.91 Unspecified site, acute myocardial infarction—initial episode

- Please provide data on disparities.

0289 Median time to ECG
Developer Response: The developer provided detailed tables depicting disparities data for the most recent performance data.
RECOMMENDATION: MAINTAIN ENDORSEMENT
Public and Member Comment Comments included: • General support of the measure • The burden falls on transferring hospitals to collect and improve time to ECG but fails to capture the time to ECG for patients with STEMI and chest pain in the larger hospitals where patients are transferred into. It might make sense to reformulate the definition to include all patients presenting to any hospital with an MI not just those patients transferred to PCI centers. • The inclusion of "admission to a critical access hospital" does not meet CAH billing requirements.

0286 Aspirin at arrival

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

Description: Percentage of emergency department acute myocardial infarction (AMI) patients or chest pain patients (with probable cardiac chest pain) without aspirin contraindications who received aspirin within 24 hours before ED arrival or prior to transfer.

Numerator Statement: Emergency department AMI or chest pain patients (with probable cardiac chest pain) who received aspirin within 24 hours before ED arrival or prior to transfer.

Denominator Statement: Emergency department AMI or chest pain patients (with probable cardiac chest pain) without aspirin contraindications.

Exclusions: Excluded Populations:

- Patients less than 18 years of age.
- Patients with a documented reason for no aspirin on arrival.

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Facility/Agency; Population: national Type of Measure: Process

Data Source: Paper medical record/flowsheet; Electronic administrative data/claims; Electronic Health/Medical Record N/A

Measure Steward: CMS

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-18; N-3

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- 25% of hospitals are below 94% -indicates there may be more room for improvement here.
- No clear evidence to say patients outside of those having a myocardial infarction will benefit.

2. Scientific Acceptability of Measure Properties: C-7; P-11; M-3; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- No data provided for disparities.
- Validity is questionable-- about 20% of those patients who were initially identified as meeting criteria were then found to be invalid.

3. Usability: C-14; P-4; M-1; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- In use.
- Very similar to measure 0132 for patient not being transferred – reported on Hospital Compare.

4. Feasibility: C-16; P-4; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions— no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data elements are easily generated from electronic or chart review.

0286 Aspirin at arrival

Does the Measure Meet Criteria for Endorsement: Y-19; N-1; A-0

Rationale:

- Essentially the same measure as 0132, but applies to patients being transferred.

If Applicable, Conditions/Questions for Developer:

- The title and description do not accurately describe what is being measured. Significant explanation from the developer was needed for the Committee to understand the intent of the measure. Using the same name for measures 0132 and 0286 is confusing to audiences, and some may assume they are redundant or competing measures.

Developer Response: This measure includes both AMI and chest pain patients with probable cardiac chest pain. The population is emergency department patients who are transferred out to another facility and subsequently are not captured through measure 0132. This population differs from 0132 as patients with suspected cardiac chest pain are also included in the measure.

- Provide data on disparities.

Developer Response: Data tables on disparities were provided to the Committee.

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

- This data can be collected by the facility, however if it is intended the facility ensure compliance then that would be extremely difficult as this is not within the facility's control.

Steering Committee: A facility can determine whether a patient received aspirin in the 24 hours prior to arrival, and if not, the facility can give aspirin to the patient.

0288 Fibrinolytic therapy received within 30 minutes of ED arrival

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

Description: Emergency department acute myocardial infarction (AMI) patients receiving fibrinolytic therapy during the ED stay and having a time from ED arrival to fibrinolysis of 30 minutes or less.

Numerator Statement: Emergency department AMI patients whose time from ED arrival to fibrinolysis is 30 minutes or less.

Denominator Statement: Emergency department AMI patients with ST-segment elevation or LBBB on ECG who received fibrinolytic therapy.

Exclusions: Excluded Populations:

• Patients <18 years of age.

• Patients who did not receive fibrinolytic administration within 30 minutes AND had a reason for delay in fibrinolytic therapy as defined in the Data Dictionary.

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Facility/Agency; Population: national Type of Measure: Process

Data Source: Paper medical record/flowsheet; Electronic administrative data/claims; Electronic Health/Medical Record. See specifications at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244.

Measure Steward: CMS21244-1850

0287 Median time to fibrinolysis

For More Information: Complete Measure Submission;

Description: Median time from emergency department arrival to administration of fibrinolytic therapy in ED patients with ST-segment elevation or left bundle branch block (LBBB) on the electrocardiogram (ECG) performed closest to ED arrival and prior to transfer.

Numerator Statement: Continuous Variable Statement:

Time (in minutes) from emergency department arrival to administration of fibrinolytic therapy in AMI patients with ST-segment elevation or LBBB on the ECG performed closest to ED arrival and prior to transfer.

Denominator Statement: Continuous Variable Statement:

Time (in minutes) from emergency department arrival to administration of fibrinolytic therapy in AMI patients with ST-segment elevation or LBBB on the ECG performed closest to ED arrival and prior to transfer.

Exclusions:

• Patients <18 years of age.

• Patients who did not receive fibrinolytic administration within 30 minutes and had a reason for delay in fibrinolytic therapy.

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Facility/Agency; Population: national Type of Measure: Process

Data Source: Paper medical record/flowsheet; Electronic administrative data/claims; Electronic Health/Medical Record. See specifications at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244.

Measure Steward: CMS

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Significant disparities differences noted.

2. Scientific Acceptability of Measure Properties: C-19; P-1; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

0288 Fibrinolytic therapy received within 30 minutes of ED arrival

Rationale:

- Patients who have long lengths of stay, >120 days, are excluded from this measure. These patients are a small proportion of the patients.
- This is a medium-to-large-hospital measure. Only those with more than 25 AMI cases per year are eligible (even if the number who receive fibrinolytics is small).

3. Usability: C-19; P-2; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Important and meaningful for public reporting.

4. Feasibility: C-20; P-1; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data can be collected either from electronic health records or chart review.
- Good information provided on susceptibility to inaccuracies, errors, or unintended consequences.
- Developers included a nice discussion of suceptibilty to inaccuracies.

Does the Measure Meet Criteria for Endorsement: Y-20; N-0; A-0

Rationale:

- Same measure as 164 but different reporting mechanism for patients being transferred.
- Steering Committee duplicated voting on this measure with measure 164.
- 287 uses the same data as 288 but is presented in a different way. Justification for both is that median times may be more actionable in terms of quality improvement, and proportion facilitates comparisons among sites.
- Evaluation of 287 and 288 is the same (also for 164)

If Applicable, Conditions/Questions for Developer:

- The Committee concluded that 288 and 287 are the same measure with different representation of the results rather than competing measures and should be listed under the same NQF number.

Developer Response: Measures are the same specifications, except 0288 and 0287 capture patients who are seen in the emergency department and are subsequently transferred out to another facility and thus are not captured by measure 0164.

RECOMMENDATION: MAINTAIN ENDORSEMENT as a single measure that includes specifications for the two methods of reporting the same data

Public and Member Comment

Comments included:

- Fibrinolysis within 30 minutes is unreasonable as the physician needs time to find out if there are contraindications and decide if fibrinolysis is reasonable for the patient being treated. This is a better measure for non-interventional facilities that must transfer the patient and should exclude patients who cannot be transferred within 90 minutes because of remote location.

Developer did not respond to the comment.

Steering Committee: Comment reviewed. No change in recommendation.

0290 Median time to transfer to another facility for acute coronary intervention

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

Description: Median time from emergency department arrival to time of transfer to another facility for acute coronary intervention.

Numerator Statement: Continuous Variable Statement:

Time (in minutes) from emergency department arrival to transfer to another facility for acute coronary intervention.

Included Populations:

- ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 6.1, and
- E/M Code for emergency department encounter as defined in Appendix A, OP Table 1.0a, and
- Patients discharged/transferred to a short-term general hospital for inpatient care, to a Federal healthcare facility, or to a Critical Access Hospital, and
- Patients not receiving Fibrinolytic Administration as defined in the Data Dictionary, and
- Patients with Transfer for Acute Coronary Intervention as defined in the Data Dictionary.

Denominator Statement: Time (in minutes) from emergency department arrival to transfer to another facility for acute coronary intervention.

Exclusions:

- Patients <18 years of age.
- Patients receiving fibrinolytic administration as defined in the Data Dictionary.

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Facility/Agency; Population: national; Can be measured at all levels Type of Measure: Process

Data Source: Paper medical record/flowsheet; Electronic administrative data/claims; Electronic Health/Medical Record N/A

Measure Steward: CMS

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Measure supports national efforts on making the transfers more efficiently.

2. Scientific Acceptability of Measure Properties: C-13: P-8; M-0, N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Strictly defined population of patients with AMI/STEMI/LBBB who are specifically transferred for acute coronary intervention.
- Reliability of arrival time documentation considered. Data shows there was 20% error rate in arrival time when it was audited.
- Disparities are not defined but can be captured and calculated. Committee recommended the disparities element be included.

3. Usability: C-13; P-8;, M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Measure is currently in use, reported, and harmonized.

4. Feasibility: C-0; P-21; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

0290 Median time to transfer to another facility for acute coronary intervention

Rationale:

- Abstractor collects data and needs to have a clear understaing of data defintions to accurately provide a data report.
- E-specifications not developed yet; funding is pending.
- Susceptibility to error not provided.

Does the Measure Meet Criteria for Endorsement: Y-21; N-0; A-0

Rationale:

- Addresses timeliness of transfer for intervention.
- In use and harmonized with other measures.

If Applicable, Conditions/Questions for Developer:

- The measure needs a better title and description of what is being measured.

Developer Response:

Measure Name: Median time to transfer to another facility for acute coronary intervention.

Description: Median time from emergency department arrival to time of transfer to another facility for acute coronary intervention.

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

- Concern about the potential for unintended consequences by attempting to meet a target time when a patient may not be stable for transport.

Developer did not respond to the comment.

Steering Committee: Comment reviewed. No change in recommendations.

0163 Primary PCI received within 90 minutes of hospital arrival

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

Description: Percentage of acute myocardial infarction (AMI) patients with ST-segment elevation or LBBB on the ECG closest to arrival time receiving primary percutaneous coronary intervention (PCI) during the hospital stay with a time from hospital arrival to PCI of 90 minutes or less.

Numerator Statement: AMI patients whose time from hospital arrival to primary percutaneous coronary intervention (PCI) is 90 minutes or less.

Denominator Statement: Principal diagnosis of AMI (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of AMI: 410.00, 410.01, 410.10, 410.11, 410.20, 410.21, 410.30, 410.31, 410.40, 410.41, 410.50, 410.51, 410.60, 410.61, 410.70, 410.71, 410.80, 410.81, 410.90, 410.91); and PCI procedure (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal or other procedure code for PCI: 00.66); and ST-segment elevation or LBBB on the ECG performed closest to hospital arrival; and PCI performed within 24 hours after hospital arrival.

Exclusions:

- •<18 years of age.
- •Patients who have a length of stay >120 days.
- •Patients enrolled in clinical trials.
- •Patients received as a transfer from an inpatient or outpatient department of another hospital.
- •Patients received as a transfer from the emergency/observation department of another hospital.
- •Patients received as a transfer from an ambulatory surgery center.
- •Patient administered fibrinolytic agent prior to PCI.
- •PCI described as non-primary by physician, advanced practice nurse, or physician assistant.
- •Patients who did not receive PCI within 90 minutes and had a reason for delay documented by a physician, advanced practice nurse, or physician assistant (e.g., social, religious, initial concern or refusal, cardiopulmonary arrest, balloon pump insertion, respiratory failure requiring intubation).

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Facility/Agency; Population: national; Program: QIO

Type of Measure: Process

Data Source: Paper medical record/flowsheet; Electronic Health/Medical Record CMS Abstraction & Reporting Tool (CART). Vendor tools also available. Retooled eMeasure

Measure Steward: CMS

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Good evidence and data that early PCI is very important.

2. Scientific Acceptability of Measure Properties: C-19; P-2; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- CDAC comparison to hospital data demonstrates reasonable reliability and validity.
- More data needed on disparities; 7% difference in rates for Caucasians going for PCI in a timely fashion, compared to African Americans.
- Measure excludes very unstable patients and patients transferred from another facility.

3. Usability: C-21; P-0; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to

0163 Primary PCI received within 90 minutes of hospital arrival

existing measures)

Rationale:

- Information produced is meaningful and understandable. Has been used in different registries in the past.

4. Feasibility: C-21; P-0; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions— no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data elements are easily obtainable through routine care processes.

Does the Measure Meet Criteria for Endorsement: Y-16; N-0; A-0

Rationale:

- Good evidence base.
- Reported on Hospital Compare

If Applicable, Conditions/Questions for Developer:

- How often is the exclusion for "system reason for delay" used? Given the potential for gaming, is this being monitored? Developer Response: Current overall trends in measure numerator and denominator counts do not suggest gaming. There is no increasing trend in the use of this reason data element. In our last analysis, Reason for Delay in PCI was occurring in only 0.9% of cases (1Q10). Nevertheless, yes, this is being monitored.

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

- Questioning the need the "system reason" as exclusion, as system delays would indicate an issue with quality.

Developer did not respond.

Steering Committee: Developers previously noted that "there is no increasing trend in the use of the exclusion reason, system reason for delay, which occurs in only 0.9% of cases."

0164 Fibrinolytic therapy received within 30 minutes of hospital arrival

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

Description: Percentage of acute myocardial infarction (AMI) patients with ST-segment elevation or LBBB on the ECG closest to arrival time receiving fibrinolytic therapy during the hospital stay and having a time from hospital arrival to fibrinolysis of 30 minutes or less.

Numerator Statement: AMI patients whose time from hospital arrival to fibrinolysis is 30 minutes or less.

Denominator Statement: Principal diagnosis of AMI (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of AMI: 410.00, 410.01, 410.10, 410.11, 410.20, 410.21, 410.30, 410.31, 410.40, 410.41, 410.50, 410.51, 410.60, 410.61, 410.70, 410.71, 410.80, 410.81, 410.90, 410.91); and ST-segment elevation or LBBB on the ECG performed closest to hospital arrival; and fibrinolytic therapy within 6 hours after hospital arrival; and fibrinolytic therapy is primary reperfusion therapy.

Exclusions:

- •<18 years of age.
- •Patients who have a length of stay >120 days.
- •Patients enrolled in clinical trials.
- •Patients received as a transfer from an inpatient or outpatient department of another hospital.
- •Patients received as a transfer from the emergency/observation department of another hospital.
- •Patients received as a transfer from an ambulatory surgery center.
- •Patients who did not receive fibrinolytic therapy within 30 minutes and had a reason for delay documented by a physician, advanced practice nurse, or physician assistant (e.g., social, religious, initial concern or refusal, cardiopulmonary arrest, balloon pump insertion, respiratory failure requiring intubation).

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Facility/Agency; Population: national; Program: QIO Type of Measure: Process

Data Source: Paper medical record/flowsheet; Electronic Health/Medical Record CMS Abstraction & Reporting Tool (CART). Vendor tools also available. Retooled eMeasure

Measure Steward: CMS

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Performance around 50%.
- The Committee noted signifigant disparities differences: lower for females and patients aged > 75 years.
- Same discussion as for measure 288.

2. Scientific Acceptability of Measure Properties: C-19; P-1; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Patients who have long lengths of stay, >120 days, are excluded from this measure. These patients are a small proportion of the patients.
- This is a medium-to-large-hospital measure. Only those with more than 25 AMI cases per year are eligible (even if the number who receive fibrinolytics is small).

3. Usability: C-19; P-2; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

0164 Fibrinolytic therapy received within 30 minutes of hospital arrival

- Important and meaningful for public reporting.

4. Feasibility: C-20; P-1; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data can be collected either from electronic health records or chart review.
- Good information provided on susceptibility to inaccuracies, errors, or unintended consequences.
- Developers included a nice discussion of suceptibilty to inaccuracies.

Does the Measure Meet Criteria for Endorsement?: Y-20; N-0; A-0

Rationale:

- Disparities differences.
- Rates highly on all four criteria.

If Applicable, Conditions/Questions for Developer: See discussion of measure 0288

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

- If a non-interventional facility can transfer a patient within 60 minutes to a facility that does cardiac intervention it is better to do so, than give the fibrinolysis. Once a patient is at an interventional facility, we question whether 30 minutes is achievable. 60 minutes would be more achievable for this measure.

Steering Committee: This measure excludes patient who are transferred.

0355 Bilateral cardiac catheterization rate (IQI 25)

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percent of discharges with heart catheterizations in any procedure field with simultaneous right and left heart (bilateral) catheterizations.

Numerator Statement: Discharges with ICD-9-CM procedure code for right and left heart catheterization in any procedure code field.

Denominator Statement: Discharges with ICD-9-CM procedure code for heart catheterizations in any procedure code field.

Exclusions: None

Adjustment/Stratification: No risk adjustment necessary. None Observed (raw) rates may be stratified by gender, age groups, race/ethnicity categories, and payer categories.

Risk adjustment of the data is recommended using age and sex. Reliability adjustment is also recommended.

Level of Analysis: Facility/Agency Type of Measure: Outcome

Data Source: Electronic administrative data/claims; Hospital administrative discharge data. See data requirements in the AHRQ QI Windows Application Documentation: http://www.qualityindicators.ahrq.gov/software.htm

Measure Steward: AHRQ

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-18; N-3

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Recently modified to add the list of procedure indications. Implemented in Version 4.0 of IQI software. An indicator of overuse or unnecessary procedure or a component of a procedure performed without appropriate indications.
- Downward trend over past 10 years resulted from changes in the specifications.

2. Scientific Acceptability of Measure Properties: C-10; P-9; M-2; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Looks at heart catherizations in any procedure field but only to include cases with coronary disease.
- Long list of exclusions including diagnoses that would lead to an indication for right heart catherization.
- Reliabilty and validity testing have been done using large databases.
- Disparaties across payers probably reflect difference across ages.
- There is a 1.3% difference in the rate of inappropriate right heart catherizations between the 5th and 95th percentile.
- Steering Committee interested in seeing more recent regional variation data..

3. Usability: C-15; P-5; M-0; N-1

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Measures in use across multiple states and national reporting agencies.
- No harmonization issues are apparent.

4. Feasibility: C-17; P-4; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data are collected from coding; easily obtainable from electronic record sounces.

0355 Bilateral cardiac catheterization rate (IQI 25)
Does the Measure Meet Criteria for Endorsement: Y-17; N-3; A-0 Rationale: • An indicator of overuse; looking at appropriateness. • Hospital-level measure.
If Applicable, Conditions/Questions for Developer:
RECOMMENDATION: MAINTAIN ENDORSEMENT
Public and Member Comment Comments included: • Request for clarification on the purpose of this measure and if this measure represents a good indicator of quality. • General support of the measure. Steering Committee: Bilateral cardiac catheterization is not an indicated procedure but is still performed; this is an overuse measure.

0964 Therapy with aspirin, P2Y12 inhibitor and statin at discharge

New measure
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Patients undergoing PCI who receive prescriptions for all medications (aspirin, P2Y12 and satins) for which they are eligible for at discharge.
Numerator Statement: Patients who receive all medications for which they are eligible.
Aspirin prescribed at discharge (if eligible for aspirin as described in denominator)
AND
P2Y12 agent (clopidogrel, prasurgel, or ticlopidine) prescribed at discharge (if eligible for P2Y12 as described in denominator)
AND
Statin prescribed at discharge (if eligible for statin as described in denominator).
Denominator Statement: All patients surviving hospitalization who are eligible to receive any one of the three medication classes:

1. Eligible for aspirin (ASA): Patients undergoing PCI who do not have contraindication to aspirin documented

OR

2. Eligibility for P2Y12 agent (clopidogrel, prasurgel, or ticlopidine): Patients undergoing PCI with stenting who do not have a contraindication to P2Y12 agent documented

OR

Eligibility for statin therapy: Patients undergoing PCI who do not have a contraindication to stain therapy.
Exclusions: Discharge statue of expired; not eligible for aspirin, P2Y12, or statin (contraindicated or blinded to all 3 medications).
Adjustment/Stratification: No risk adjustment necessary
Level of Analysis: Facility Type of Measure: Composite with component measures combined at patient level.
Data Source: Registry Data http://www.ncdr.com/WebNCDR/ELEMENTS.ASPX
Measure Steward: American College of Cardiology Foundation, 2400 N. Street NW, Washington, DC 20037

1. Importance to Measure and Report: Y-19; N-0
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale:

- Developed as a result of the Phase I in-person meeting of the Steering Committee.
- Performance gap higher with composite
- High impact and solid evidence

2. Scientific Acceptability of Measure Properties: C-16; P-4; M-0; N-0
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale:

- Includes FDA approved drugs

3. Usability: C-19; P-1; M-0; N-0
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale:

- Used in cath labs already

0964 Therapy with aspirin, P2Y12 inhibitor and statin at discharge

- Adds value to existing measures as a composite.

4. Feasibility: C-19; P-1; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- Burden for public reporting purposes as a hybrid measure if only 50 percent of physicians' offices use electronic health records.

Does the Measure Meet Criteria for Endorsement: Yes -18; No-1

Rationale:

- Exclusions possible if LDL is low

If Applicable, Conditions/Questions for Developer:

RECOMMENDATION: Recommend for endorsement

Public and Member Comment

Comments included:

- The Steering Committee is encouraged to work with the developer to expand the measure to include prescription filled to strengthen the value of the measure.

Developer response:

- Agree it is valuable to obtain information about whether the prescription is filled, as well as whether the medication is prescribed. However, this measure is specified for the NCDR CathPCI Registry, which does not currently capture post-discharge patient information.

0230 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older

For More Information: Complete Measure Submission;

The following measure information represents a revised measure for all ages submitted during the review of the original measure for ages 65 years and older.

Description: The measure estimates a hospital-level risk-standardized mortality rate (RSMR), defined as death from any cause within 30 days after the index admission date, for patients 18 and older discharged from the hospital with a principal diagnosis of AMI.

Numerator Statement: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome.

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.

Denominator Statement: Note: This outcome measure does not have a traditional numerator and denominator like a core process measure; thus, we are using this field to define the patient cohort.

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. While the measure can be applied to populations aged 18 years or older, national data are often only available for patients aged 65 years or older. We have explicitly tested the measure in both age groups.

The cohorts include admissions for patients discharged from the hospital with a principal diagnosis of AMI (ICD-9-CM codes 410.xx except for 410.x2) and with a complete claims history for the 12 months prior to admission. Patients who are transferred from one acute care facility to another must have a principal discharge diagnosis of AMI at both hospitals. The initial hospital for a transferred patient is designated as the responsible institution for the episode.

If a patient has more than one AMI admission in a year, one hospitalization is randomly selected for inclusion in the measure.

Exclusions: For all cohorts, the measure excludes admissions for patients:

• who were discharged on the day of admission or the following day and did not die or get transferred (because it is less likely they had a significant AMI).

• who were transferred from another acute care hospital (because the death is attributed to the hospital where the patient was initially admitted).

• with inconsistent or unknown mortality status or other unreliable data (e.g. date of death precedes admission date).

• who were discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge).

• that were not the first hospitalization in the 30 days prior to a patient's death. We use this criterion to prevent attribution of a death to two admissions.

For Medicare FFS patients, the measure additionally excludes admissions for patients:

• enrolled in the Medicare Hospice program any time in the 12 months prior to the index hospitalization including the first day of the index admission (since it is likely these patients are continuing to seek comfort measures only). Although this exclusion currently applies to Medicare FFS patients, it could be expanded to include all payer data if an acceptable method for identifying hospice patients outside of Medicare becomes available.

Adjustment/Stratification: Risk adjustment devised specifically for this measure/condition. Our approach to risk adjustment was 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 (a form of hierarchical generalized linear model [HGLM]) to create a hospital level 30-day RSMR. This approach to modeling appropriately accounts for the structure of the data (patients clustered within hospitals), the underlying risk due to patients' comorbidities, and sample size at a given hospital when estimating hospital mortality rates. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand and Shahnian et al. 2007). At the patient level, each model adjusts the log-odds of mortality within 30 days of admission for age, sex, selected clinical

covariates and a hospital specific intercept. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept, or hospital specific effect, represents the hospital contribution to the risk of mortality, after accounting for patient risk and sample size, and can be inferred as a measure of quality. The hospital-specific intercepts are given a distribution in order 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.

Candidate and Final Risk-adjustment Variables: The measure was developed using Medicare FFS claims data. Candidate variables were patient-level risk-adjustors that are expected to be predictive of mortality, based on empirical analysis, prior literature, and clinical judgment, including demographic factors (age, sex) and indicators of comorbidity and disease severity. For each patient, covariates were obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusted for case differences based on the clinical status of the patient 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. We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission. In addition, only comorbidities that conveyed information about the patient at that time or in the 12 months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment.

The final set of risk-adjustment variables is:

Demographic

- Age-65 (years above 65, continuous) for 65 and over cohorts; or Age (years, continuous) for 18 and over cohorts.
- Male

Cardiovascular

- History of PTCA
- History of CABG
- Congestive heart failure
- History of AMI
- Unstable angina
- Anterior myocardial infarction
- Other location of myocardial infarction
- Chronic atherosclerosis
- Cardio-respiratory failure and shock
- Valvular and rheumatic heart disease

Comorbidity

- Hypertension
- Stroke
- Cerebrovascular disease
- Renal failure
- Chronic Obstructive Pulmonary Disease
- Pneumonia
- Diabetes and DM complications
- Protein-calorie malnutrition
- Dementia and senility
- Hemiplegia, paraplegia, paralysis, functional disability
- Peripheral vascular disease
- Metastatic cancer, acute leukemia and other severe cancers
- Trauma in the last year
- Major psychiatric disorders
- Chronic liver disease

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0230 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older

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.

Level of Analysis: Facility/Agency Type of Measure: Outcome

Data Source: Administrative claims, Other

Two data sources were used to create the measure:

1. Medicare Part A inpatient and outpatient and Part B outpatient claims: This database 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, and hospice care, as well as inpatient and outpatient 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 dataset 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 vital status (Fleming et al. 1992).

The measure was originally developed with claims data from 1998. The models have been maintained and re-evaluated each year since public reporting of the measure began in 2007. For details, see measure methodology and measure maintenance reports posted at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1219069855841.

The measure was subsequently applied to California Patient Discharge Data, a large, linked all-payer database of patient hospital admissions. Records are linked by a unique patient identification number, allowing us to determine patient history from previous hospitalizations. In addition, the unique patient ID number is used to link with state vital statistics records to assess 30-day mortality.

To apply the measure to Medicare data, Medicare Part A inpatient and outpatient and Part B outpatient claims are used. To apply the measure to a non-Medicare population, inpatient claims data are used.

Fleming C, Fisher ES, Chang CH, Bubolz D, Malenda J. 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.

Measure Steward: Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-02-01, Baltimore, MD 21244-9045

STEERING COMMMITTEE EVALUATION

1. Importance to Measure and Report: original measure Y-19; N-0; revised measure Y-12 N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- This is an important indicator, as mortality rates after MI are high.
- There is wide variation in performance among hospitals, and this variation persists after adjustment for patient-level characteristics.

Revised measure:

- The revised measure captures all patients who had an AMI.

2. Scientific Acceptability of Measure Properties: C-19; P-1; M-0; N-0 ; revised measure C-12; P-0; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- The measure is precise.

0230 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older

- Reliability demonstrated in split-half analysis. Validity demonstrated by chart-based audit.
- Fully risk adjusted with hierarchical general linear modeling.
- Analysis indicates that disparities are small at the hospital level.
- Limited to 65 years and older.

Revised measure:

- Comprehensive testing analysis.
- Model fit is extremely good – c statistic is >0.7 for both populations.
- Committee members were impressed that testing demonstrates that there is no need to change the risk variables.
- Used linked vital statistics data from California for testing – is this available in all states?
- The developers report that data from the National Death index and administrative data are similarly delayed.

3. Usability: C-18; P-2; M-0; N-0; revised measure C-11; P-1; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- The measure is publicly reported.
- The statistical adjustment method is the same one used for heart failure and pneumonia.
- AHRQ reports in-hospital mortality, but 30-day mortality is independent of length of stay and cannot be influenced by care decisions like early discharge.

Revised measure:

- Revised measure broadens the measured population..

4. Feasibility: C-20; P-0; M-0; N-0; revised measure C-9; P-3; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data are byproduct of routine medical record coding.
- Data are available electronically, and no additional sources are required.
- Measure is already in use.

Revised measure:

- Testing indicates that Medicare and all payer data can be combined.
- The developers report that data from the National Death index and administrative data are similarly delayed.

Does the Measure Meet Criteria for Endorsement: Y-18; N-0; A-0; revised measure Y-12; N-0

Rationale:

- Risk-adjusted outcome measure.
- Well developed and tested.
- In use for public reporting.
- Complete measure information in submission, including disparities data.

Revised measure:

- Revised measure captures all patients with good risk model fit.

If Applicable, Conditions/Questions for Developer:

- Developer indicated it is working on expanding the measure to apply to all patients, not just those over 65 years. On June 3, 2011 the developer forwarded testing results for the AMI 30 day mortality applied to all payer data. The Committee reviewed the revised measure as an addendum.

RECOMMENDATION: MAINTAIN ENDORSEMENT of REVISED MEASURE for all ages

0230 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older

Public and Member Comment

COMMENTS on original measure:

- All-cause mortality rate does not correlate well with AMI mortality.

Committee response:

- All patient care is inter-related. All-cause mortality reflects the reality of caring for patients. It is not possible to separate "cardiovascular causes" independent of other conditions affecting a patient.

COMMENTS on revised measure:

- Clarify the data sources that were used in the all payer data testing.

Developer Response:

The data source used to complete the all payer testing was the state of California's Patient Discharge Database (PDD) which contains records for all discharges from all non-Federal hospitals located in California. California is a diverse state, and, with more than 37 million residents, California represents 12% of the US population. In 2006, there were approximately 3 million adult discharges from more than 450 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. Specifically, patients from this database are linked to the California Death Statistical Master File (DSMF) using social security number in order to validate and record deaths.

The Steering Committee agreed that the developer answered the comment.

0133 PCI mortality (risk-adjusted)©

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Risk-adjusted PCI mortality rate.

Numerator Statement: Patients 18 years of age and older with a PCI procedure performed during admission who expired.

Denominator Statement: Patients 18 years of age and older with a PCI procedure performed during admission.

Exclusions: 1. NCDR Registry patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission);

2. Data submissions that do not pass the data quality and completeness reports.

3. Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission).

4. Patient admissions with PCI who transferred to another facility on discharge.

5. Patient admissions with PCI who have more than two variables in the risk model that are missing.

Adjustment/Stratification: Risk-adjustment devised specifically for this measure/condition. Risk adjustment methodology is a logistic regression analysis.

Weights were assigned to risk factors or variables reflecting the strength of their association to PCI in-hospital mortality. Each patient in a facilities submission is given a risk score to predict risk of in hospital mortality and accurately report risk-adjusted mortality rates during hospitalization.

Data from 181,775 procedures performed from January 2004 to March 2006 were used to develop risk models based on pre-procedural and/or angiographic factors using logistic regression.

The most noteworthy risk factors or variables in the model include:

1. ST-segment elevation MI defined as a patient who had a STEMI on admission, with an onset within 24 hours, or the procedure indication was primary, rescue, or facilitated PCI.

2. Discharge status (alive or expired). The interaction between this variable with other variables were key in the analysis.

3. The glomerular filtration rate (GFR) variable is calculated using abbreviated MDRD formula [GFR = 186 ×?(last creatinine)-1.154 × (age)-0.203 × (gender factor) × (race factor) where (gender factor) = 1 for male and 0.742 for female, (race factor) = 1.21 for black and 1 for others].

4. The body mass index (BMI) (kg/m^2) is calculated from height (cm) and weight (kg): BMI = weight × 10000 / (height) 2.

All Risk Adjustment Variables

STEMI patients:

- Age (for age ≤70, for age >70)
- Cardiogenic Shock at Admission
- Previous History—CHF
- Peripheral Vascular Disease
- Chronic Lung Disease
- GFR (for STEMI, for non-STEMI)
- NYHA Class IV (for STEMI, for non-STEMI)
- PCI Status (for STEMI, for non STEMI)
- Urgent
- Emergency
- Salvage
- Previous Vascular Disease
- Cerebrovascular Disease
- Previous PCI
- PreOp IABP
- Ejection Fraction Percentage
- Coronary Lesion ≥50%: Subacute
- Thrombosis? Yes vs. No

0133 PCI mortality (risk-adjusted)©

Highest Risk Pre-Procedure TIMI Flow = None vs. Yes
1.19 1.02 1.38 4.84
Diabetes/Control (Non-Insulin Diabetes vs. No Diabetes; Insulin Diabetes vs. No Diabetes)
Highest Risk Lesion: SCAI Lesion Class (II or III vs. I; IV vs. I)
BMI [kg/m^2] (for STEMI, for Non-STEMI)
Highest Risk Lesion - Segment Category (for STEMI, for non STEMI)
-pRCA/mLAD/pCIRC
-pLAD
-Left Main N/A

Level of Analysis: Facility/Agency Type of Measure: Outcome
Data Source: Registry data National Cardiovascular Data Registry (NCDR) CathPCI Registry®
Measure Steward: ACC

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Outcome measure; is a very frequently performed procedure that can have major impact on patients' lives.
- Expensive procedure so information and knowledge about how centers are performing and where improvements can be made are very important.
- There is a gap in terms of mortality after PCI among different hospitals, and database allows hospitals to compare themselves against each other and against a national baseline.
- Goal is to have a composite measure.

2. Scientific Acceptability of Measure Properties: C-13; P-7; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Concerns included: data submissions that don't pass a data quality and completeness assessment are excluded; the fact that excluding reports because of completeness might bias the mortality to be lower than it actually it is; how to handle patients taken back for a second procedure as a result of a poorly performed first procedure.
- Transfers excluded; can lower mortality by transferring to another facility; however, this includes only about 0.7%.

3. Usability: C-8; P-12; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Has been in use by many hospitals.
- Outpatient sites are not captured in registry.

4. Feasibility: C-21; P-0; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data are available and retrievable.

Does the Measure Meet Criteria for Endorsement: Y-21; N-0; A-0

Rationale:

- Includes all PCIs performed (30% with AMI; 70% "elective")—data from NCDR registry.
- In-patient mortality—outpatient sites not captured in the registry.

0133 PCI mortality (risk-adjusted)©

Implementation Comment Received:

- Concern over the definition of PCI status of "salvage" and how it reflects in the PCI RAM model which does not accurately reflect each facilities patient population.

Developer Response to Implementation Comment:

- The definition of a PCI salvage procedure: The definition of salvage in the v3 dataset was harmonized with the definition in the Society for Thoracic Surgery dataset. It was revised in the v4 dataset in 2009 because the committees that develop, review and approve the data elements felt the previous definition was inadequately precise for use for a non-surgical procedure. After implementation of the more focused definition, there was a slightly lower aggregate rate of salvage cases in the registry (0.4% with the v3 dataset compared with 0.3% with the v4 dataset).

	v3 dataset (2005-July 2009)	v4 dataset (July 2009-present)
Definition of PCI Salvage	The patient is undergoing CPR en route to the Cardiac Cath Lab or prior to procedure.	The procedure is a last resort. The patient is in cardiogenic shock at the start of the procedure. Within the last ten minutes prior to the start of the procedure the patient has also received chest compressions for a total of at least sixty seconds or has been on unanticipated extracorporeal circulatory support (e.g. extracorporeal membrane oxygenation, cardiopulmonary support)

Currently, the CathPCI Registry Steering Committee is finalizing a dataset update for 2012. They have proposed several additional variables to further refine case severity to capture cases that may fall between the emergency and salvage status. This includes additional elements describing cardiac arrest, as well as neurologic status of the patient at the start of the procedure.

- PCI RAM model revision – Duke Clinical Research Institute, with the oversight of a workgroup of physicians, revised the PCI RAM model using v4 data. The model was approved by the NCDR committees for inclusion in the CathPCI 2011 q2 report. The revised model includes new elements not available in v3 dataset (such as cardiac arrest). The model also included a new 6-level variable matrix, combining PCI status and presence of shock. The model provides predicted mortality ranging from 0.2% for a patient undergoing elective PCI with no shock, to 71% for a patient with shock undergoing salvage PCI. The model accurately predicts mortality, as evidenced by a C-index of 0.934.
  The next step for this workgroup is to apply and study the model performance in subsets of the PCI population, such those at particularly high risk for death, or in groups of hospitals, such as STEMI referral centers.

Competing and related measures:

- 535: 30-day all-cause risk-standardized mortality rate of percutaneous coronary intervention (PCI) for patients without ST segment elevation myocardial infarction (STEMI) and without cardiogenic shock (CMS)
- 536:30-day all-cause risk-standardized mortality rate of Percutaneous Coronary Intervention (PCI) for patients with ST segment elevation myocardial (STEMI) or cardiogenic shock (CMS)

The variables in all three measures are harmonized in that they use the same clinical registry data elements and definitions (derived from the NCDR CathPCI Registry). Related measures, not competing.

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

- The measure as described, although risk adjusted, would not adequately distinguish between the urgent, rescue procedure and the elective planned procedure.
- Changes in the CathPCI data set are being planned, and it may be advisable to hold off until the changes are

0133 PCI mortality (risk-adjusted)©
available. • Please specify if this is an all-cause mortality. Patients who do not arrive at an interventional facility within 60 minutes of first medical contact should be excluded from this measure. Developer response: • PCI Mortality: One of the most important in-patient outcomes is the measure of mortality. Risk adjusted mortality accounts for different risks within the case mix at hospitals participating in the CathPCI Registry. The risk factor of PCI is an important variable in this model that accurately predicts expected mortality rates. Dataset changes: The model is revised and recalibrated when new dataset versions are launched. Elective or salvage procedures: The variable matrix noted above added value to the models predictive power in its ability to adjust for elective or very sick patients. Selective submission: Hospitals participating in the CathPCI Registry are required, by contract, to submit all PCI procedures to the Registry. Though this is monitored by our annual Data Audit Program, we recognize that avoidance of submitting "high risk" cases is a potential problem and needs to be monitored and addressed by the NCDR. • This measure is an “all-cause” in-hospital mortality measure. There is no exclusion criteria for patients presenting to the facility for inclusion in the model. Steering Committee: Agree with developer’s responses.

Measures endorsed and placed in reserve status:

0137 ACEI or ARB for left ventricular systolic dysfunction- acute myocardial infarction (AMI) patients
Maintenance review For More Information: Detailed Measure Specifications; Complete Measure Submission;
Description: Percentage of acute myocardial infarction (AMI) patients with left ventricular systolic dysfunction (LVSD) who are prescribed an ACEI or ARB at hospital 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. Numerator Statement: AMI patients who are prescribed an ACEI or ARB at hospital discharge. Denominator Statement: AMI patients (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of AMI: 410.00, 410.01, 410.10, 410.11, 410.20, 410.21, 410.30, 410.31, 410.40, 410.41, 410.50, 410.51, 410.60, 410.61, 410.70, 410.71, 410.80, 410.81, 410.90, 410.91); with chart documentation of a left ventricular ejection fraction (LVEF) <40% or a narrative description of left ventricular systolic (LVS) function consistent with moderate or severe systolic dysfunction. Exclusions: •<18 years of age. •Patients who have a length of stay >120 days. •Discharged to another hospital. •Expired. •Left against medical advice. •Discharged to home for hospice care. •Discharged to a healthcare facility for hospice care. •Patients with comfort measures only documented. •Patients enrolled in clinical trials. •Patients with a documented reason for no ACEI and no ARB at discharge. Adjustment/Stratification: No risk adjustment necessary Level of Analysis: Facility/Agency; Population: national; Program: QIO Type of Measure: Process Data Source: Paper medical record/flowsheet; Electronic Health/Medical Record CMS Abstraction & Reporting Tool (CART). Vendor tools also available. Retooled eMeasure Measure Steward: CMS
STEERING COMMITTEE EVALUATION
1. Importance to Measure and Report: Y-21; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • High-impact measure. • Strong evidence with multiple randomized trials showing ACE inhibitors reduce morbidity and mortality in post MI patients with LVSD and ARBs are shown to be good alternative for patients unable to tolerate ACE inhibitors. • Concern regarding assumptions made on samples and bias to better results with voluntarily reported data.
2. Scientific Acceptability of Measure Properties: C-18; P-3; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: • This is a measure of inpatient performance and is not a subset of measure 0066, which is a measure of outpatient performance.

0137 ACEI or ARB for left ventricular systolic dysfunction- acute myocardial infarction (AMI) patients

- Reliability has been tested and documented to be adequate. Face validity is adequate.
- Almost 62% of exclusions were due to undocumented EF or description of LV dysfunction.
- Disparities can be identified but appear not to be present.

3. Usability: C-19; P-2; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Useful for public reporting and quality improvement.
- This is the only inpatient ACEI/ARB measure.

4. Feasibility: C-21; P-0; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- The data are collected during the process of care.
- Abstraction can lead to errors of exclusion and inclusion, but efforts to limit these errors are continuous.
- The data collection system is already in use and does not impose an undue burden.

Does the Measure Meet Criteria for Endorsement: Y-21; N-0; A-0

Rationale:

- Strong evidence of benefit.

If Applicable, Conditions/Questions for Developer:

- There are a large number of excluded patients due to lack of assessment of LVEF. Is this a quality problem?

Developer response: Uncertain. The ACC/AHA STEMI/NSTEMI Performance Measure set includes an LVSF Evaluation specific to AMI patients. The Heart Care team has recommended addition of such a measure. Issue is currently under discussion at CMS.

RECOMMENDATION: MAINTAIN ENDORSEMENT with reserve status

Public and Member Comment

Comments included:

- The Steering Committee should bypass this low-bar, low-impact measure as CMS is ending data collection with the understanding that practice has topped out.
- There are a large number of excluded patients due to lack of assessment of LVSF, we think this issue could be addressed if the measure were modified to include: documentation of an LVSF assessment, documentation of the LVSF less than 40% or a narrative description of LVS function consistent with moderate or severe systolic dysfunction, followed by evidence of the appropriate course of dispensed therapy (e.g., ACEI or ARB), if an abnormal LVSF assessment is found.

Steering Committee: After NQF confirmed that CMS is suspending data collection beginning with January 1, 2012 discharges the Committee agreed to place this measure in reserve status...

0160 Beta-blocker prescribed at discharge for AMI

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percentage of acute myocardial infarction (AMI) patients who are prescribed a beta-blocker at hospital discharge.

Numerator Statement: AMI patients who are prescribed a beta-blocker at hospital discharge.

Denominator Statement: AMI patients (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of AMI: 410.00, 410.01, 410.10, 410.11, 410.20, 410.21, 410.30, 410.31, 410.40, 410.41, 410.50, 410.51, 410.60, 410.61, 410.70, 410.71, 410.80, 410.81, 410.90, 410.91).

Exclusions: Exclusions

- •<18 years of age.
- •Patients who have a length of stay >120 days.
- •Patients enrolled in clinical trials.
- •Discharged to another hospital.
- •Expired.
- •Left against medical advice.
- •Discharged to home for hospice care.
- •Discharged to a healthcare facility for hospice care.
- •Patients with comfort measures only documented
- •Patients with a documented reason for no beta blocker at discharge.

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Facility/Agency; Population: national; Program: QIO Type of Measure: Process

Data Source: Paper medical record/flowsheet; Electronic Health/Medical Record CMS Abstraction & Reporting Tool (CART). Vendor tools also available. Retooled eMeasure.

Measure Steward: CMS

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-0; N-21

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Important measure in terms of reducing morbidity and mortality; ongoing use is designed to ensure high performance.
- Very high performance, concern about not being enough room for improvement to justify the effort.

Steering Committee asked about a special category for good, important measures that seem to be "topped out". In May 2011, the NQF Board approved a policy for a special category "reserve measures".

Committee re-voted on Importance except for 1b, opportunity for improvement:

Y-21; N-0

2. Scientific Acceptability of Measure Properties: C-14; P-1; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

-

3. Usability: C-11; P-4; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

0160 Beta-blocker prescribed at discharge for AMI
• Unless there is another way to get at the question of disparities identified by the TAP analyses, reserve status appears to be the most cost effective option for this measure.
4. Feasibility: C-14; P-1; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)* Rationale: • Widely accepted and in use by CMS
Does the Measure Meet Criteria for Endorsement: Y-15; N-0; A-0 Rationale: Meets all criteria except for opportunity for improvement
If applicable, Conditions/Questions for Developer:
RECOMMENDATION: MAINTAIN ENDORSEMENT AND PLACEMENT IN RESERVE STATUS Additional recommendation: The Steering Committee also recommends the measure be recalculated again in 3-5 years to monitor performance.
Public and Member Comment Comments included: • Encourage the Steering to Committee to bypass this measure because practice is topping out.

0142 Aspirin prescribed at discharge for AMI

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percentage of acute myocardial infarction (AMI) patients who are prescribed aspirin at hospital discharge

Numerator Statement: AMI patients who are prescribed aspirin at hospital discharge.

Denominator Statement: AMI patients (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of AMI: 410.00, 410.01, 410.10, 410.11, 410.20, 410.21, 410.30, 410.31, 410.40, 410.41, 410.50, 410.51, 410.60, 410.61, 410.70, 410.71, 410.80, 410.81, 410.90, 410.91).

Exclusions:

- •<18 years of age.
- •Patients who have a length of stay >120 days.
- •Patients enrolled in clinical trials.
- •Discharged to another hospital.
- •Expired.
- •Left against medical advice.
- •Discharged to home for hospice care.
- •Discharged to a healthcare facility for hospice care.
- •Patients with comfort measures only documented.
- • Patients with a documented reason for no aspirin at discharge.

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Facility/Agency; Population: national; Program: QIO Type of Measure: Process

Data Source: Paper medical record/flowsheet; Electronic Health/Medical Record CMS Abstraction & Reporting Tool (CART). Vendor tools also available. Retooled eMeasure

Measure Steward: CMS

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-4; N-17

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Very important and high impact; however, room for improvement when 98.5% of performance rates are documented is extremely small.
- Suggest an all-or-none composite for the AMI discharge medication measures.

The Steering Committee asked about a special category for good, important measures that seem to be "topped out". In May 2011, the NQF Board approved a policy for a special category "reserve measures."

Committee re-voted on Importance except for 1b, opportunity for improvement:

Y-21; N-0

2. Scientific Acceptability of Measure Properties: C-14; P-1; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Meets criteria for reliability and validity

3. Usability: C-11; P-3; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Unless there is another way to get at the question of disparities identified by the TAP analyses, reserve status appears to be the most cost effective option for this measure.

0142 Aspirin prescribed at discharge for AMI
4. Feasibility: C-12; P-3; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)* Rationale: • Widely accepted and in use by CMS
Does the Measure Meet Criteria for Endorsement: Y-15; N-0; A-0 Rationale: Meets all criteria except for opportunity for improvement
If applicable, Conditions/Questions for Developer:
RECOMMENDATION: MAINTAIN ENDORSEMENT AND PLACEMENT IN RESERVE STATUS Additional recommendation: The Steering Committee also recommends the measure be recalculated again in 3-5 years to monitor performance.
Public and Member Comment Comments included: • The Steering to Committee should bypass this measure because practice is topping out. Steering Committee: Measure recommended for reserve status.

0132 Aspirin at arrival for acute myocardial infarction (AMI)

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission;

Description: Percentage of acute myocardial infarction (AMI) patients who received aspirin within 24 hours before or after hospital arrival.
Numerator Statement: AMI patients who received aspirin within 24 hours before or after hospital arrival.
Denominator Statement: AMI patients (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of AMI: 410.00, 410.01, 410.10, 410.11, 410.20, 410.21, 410.30, 410.31, 410.40, 410.41, 410.50, 410.51, 410.60, 410.61, 410.70, 410.71, 410.80, 410.81, 410.90, 410.91).
Exclusions:
•<18 years of age
•Patients who have a length of stay >120 days.
•Patients enrolled in clinical trials.
•Discharged to another hospital on day of or day after arrival.
•Discharged on day of arrival.
•Expired on day of or day after arrival.
•Left against medical advice on day of or day after arrival.
•Patients with comfort measures only documented on day of or day after arrival.
•Patients with a documented reason for no aspirin on arrival.
Adjustment/Stratification: No risk adjustment necessary
Level of Analysis: Facility/Agency; Population: national; Program: QIO Type of Measure: Process
Data Source: Paper medical record/flow-\sheet; Electronic Health/Medical CMS Abstraction & Reporting Tool (CART). Vendor tools also available. Retooled eMeasure
Measure Steward: CMS

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Performance rates for this measure are very high, and there is not much variability but high impact.
- Early aspirin use has same effectiveness as reperfusion.

2. Scientific Acceptability of Measure Properties: C-19; P-2; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Well-specified and good reliability and validity data provided.

3. Usability: C-18; P-2; M-1; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Existing measure that is meaningful and useful for public reporting.
- Measure is not harmonized with ambulatory CAD but focused on in-patient care of AMI.

4. Feasibility: C-19; P-1; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Data are readily available and generated in care.

0132 Aspirin at arrival for acute myocardial infarction (AMI)

- No additional data sources are required for exclusions.

Does the Measure Meet Criteria for Endorsement: Y-18; N-1; A-0

Rationale:

- Little performance gap, but a large impact.
- Important process of care
- In use; data readily available.

If Applicable, Conditions/Questions for Developer:

- Does taking a daily low-dose aspirin 8 hours before the ED/hospital arrival for AMI count in the numerator?

Developer Response: Yes, patients with documentation in the record of receiving aspirin (any dosage) within 24 hours prior to arrival are included in the numerator.

- What is the aspirin dose and timeframe required to meet the measure?

Developer Response: Aspirin (any dosage) within 24 hours prior to arrival or 24 hours after arrival.

RECOMMENDATION: MAINTAIN ENDORSEMENT with reserve status

Public and Member Comment

Comments included:

- CMS is ending data collection with the understanding that practice has topped out. This is a good place to reduce the burden of collection and reporting.

Steering Committee: After NQF confirmed that CMS is suspending data collection beginning with January 1, 2012 discharges, the Committee agreed to place this measure in reserve status.

Measures not recommended:

960 Composite measure of hospital quality for acute myocardial infarction (AMI)

New measure

For More Information: Complete Measure Submission; Meeting/Call Proceedings

Description: A composite measure of in-hospital process and outcome of care for acute myocardial infarction (AMI) patients.

Components of the Composite: Hospital process-of-care indicators

1. Percent of AMI patients given aspirin on arrival (NQF #0132; Endorsed May 9, 2007)
2. Percent of AMI patients given aspirin at discharge (NQF #0142; Endorsed May 9, 2007)
3. Percent of AMI patients given ACE inhibitor or ARB for LVSD (NQF #0137; Endorsed May 9, 2007)
4. Percent of AMI patients given smoking cessation advice/counseling (NQF #0027; Endorsed May 1, 2006)
5. Percent of AMI patients given beta blocker at discharge (NQF #0160; Endorsed May 9, 2007)
6. Percent of AMI patients given fibrinolytic medication within 30 min. of arrival (NQF #0164; Endorsed May 9, 2007)
7. Percent of AMI patients given PCI within 90 min. of arrival (NQF #0163; Endorsed May 9, 2007)

Hospital outcome-of-care indicators

1. AMI 30-day risk-standardized mortality (NQF #0230; Endorsed May 9, 2007)
2. AMI 30-day risk-standardized readmission (NQF #0505; Endorsed Oct. 28, 2008)

Numerator Statement: The sum of all successes for acute myocardial infarction process-of-care indicators, weighted by one-half the reciprocal of the share of opportunities represented by acute myocardial infarction process-of-care indicators in total opportunities, plus the sum of all successes for acute myocardial infarction outcome-of-care indicators, weighted by one-half the reciprocal of the share of opportunities represented by acute myocardial infarction outcome-of-care indicators in total opportunities.

Denominator Statement: The total number of opportunities for success on all acute myocardial infarction indicators used in the composite.

Exclusions: Hospitals missing three or more acute myocardial infarction process-of-care indicators and one or more outcome-of-care indicator were excluded.

Adjustment/Stratification: None

Level of Analysis: Facility Type of Measure: Composite

Data Source: Paper medical record/flowsheet; Electronic Health/Medical Record CMS Abstraction & Reporting Tool (CART). Vendor tools also available. Measure Steward: CMS

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Yes-21; No-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Composite measure of NQF endorsed measures for AMI.

2. Scientific Acceptability of Measure Properties: C-0; P-9; M-7; N-5

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- A lot of imputation of values due to missing data.
- Narrow range of results: 25th percentile = 83.1%; 75th percentile = 84.9%.
- Includes smoking cessation measure that has been determined to be invalid.

3. Usability: C-1; P-9; M-8; N-3
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale:

- Narrow range of results limits usefulness.
- Providers will find it hard to understand.

4. Feasibility: C-7; P-10; M-1; N-2
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)
Rationale:

- Uses existing data from component measures.

Does the Measure Meet Criteria for Endorsement: Y-7; N-14; A-0
Rationale:

- Includes invalid smoking measure no longer endorsed by NQF.
- Limited variation in results.
- Question handling of large amount of missing data by imputation of national means.
- Complicated composite methodology—harder to understand compared to an "all or none."

If Applicable, Conditions/Questions for Developer:

RECOMMENDATION: DO NOT RECOMMEND

0282 Angina without procedure (PQI 13)

Measure maintenance
For More Information: Complete Measure Submission; Meeting/Call Proceedings

Description: All non-maternal discharges of age 18 years and older with ICD-9-CM principal diagnosis code for angina.
Numerator Statement: All discharges of age 18 years and older with ICD-9-CM principal diagnosis code for angina.
Denominator Statement: Population in Metro area or county, age 18 years and older.
Exclusions: None
Adjustment/Stratification: Risk adjustment method widely or commercially available. The predicted value for each case is computed using standard logistic regression and covariates for gender and age (in 5-year age groups). The reference population used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007, a database consisting of approximately 35 million discharges from 43 states. 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., county or state). The risk-adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Observed rates may be stratified by age and sex.
Level of Analysis: Population: states; Population: counties or cities Type of Measure: Access
Data Source: Electronic administrative data/claims; Hospital administrative discharge data. See data requirements in the AHRQ QI Windows Application Documentation: http://www.qualityindicators.ahrq.gov/software.htm
Measure Steward: AHRQ

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-0; N-21
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale:

- Coding of angina has demonstrated high variability and therefore reliability concerns. Changes in coding practices lead to significant changes in results.
- Should all admissions get a procedure? Seems to encourage procedures—wrong incentive.
- Developer states: "This indicator has unclear construct validity, because it has not been validated except as part of a set of indicators."
- There is wide variation in hospitalization rates by zip code.
- This is a community/population/geographic measure, not a hospital-level measure.

Does the Measure Meet Criteria for Endorsement: No --Did not pass Importance to Measure and Report.
Rationale:

If Applicable, Conditions/Questions for Developer:

RECOMMENDATION: REMOVE ENDORSEMENT

Public and Member Comment
Comments included:

- Re-evaluate – this measure helps to assess overuse of invasive procedures (e.g. PCIs).

Steering Committee: This measure is looking for inappropriate admissions for angina - not over use of procedures. The measure implies that admission for angina as long as it is accompanied by a procedure is appropriate – the Committee thinks this may encourage procedures. Also, coding has changed so that many patients are coded as coronary artery disease rather than angina which is a significant flaw in the measure.

1495 P2Y12 Inhibitor at discharge for patients with percutaneous coronary intervention (PCI) (with stents)

New measure

For More Information: Complete Measure Submission; Meeting/Call Proceedings

Description: Proportion of adult patients (age 18 or older) who undergo a percutaneous coronary intervention (PCI) (without a documented contraindication) with a stent implanted that had a P2Y12 inhibitor prescribed at discharge.

Numerator Statement: Count of patients with a PCI procedure with a P2Y12 inhibitor (Clopidogrel, Prasugrel, or Ticlopidine) prescribed at discharge.

Denominator Statement: Count of patients with a PCI procedure with a stent implanted.

Exclusions:

-P2Y12 coded as contraindicated or blinded.

-Discharge status of expired.

-Discharge location of "other acute care hospital," "hospice," or "against medical advice."

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Facility/Agency Type of Measure: Process

Data Source: Registry data National Cardiovascular Data Registry (NCDR®) CathPCI Registry®

Measure Steward: ACC

STEERING COMMITTEE EVALAUATION

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- This is based off a guideline that is the most widely recognized professional guideline in the United States for cardiovascular medicine in the area of PCI care.
- The value of the measure is high, but the performance gap is small and may represent reporting issues rather than true performance given the small gap of 7%.
- When the performance gap gets low, why not eliminate most exclusions? A key factor in terms of exclusions is they are the same as CMS inpatient measures as a means to reduce provider burden.

2. Scientific Acceptability of Measure Properties: C-19; P-2; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

3. Usability: C-17; P-4; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Harmonized to the extent possible with existing CMS measure and are specified identically.
- Is being used everywhere the NCDR is.
- Harmonization suggested with measure 558 and combined with 1493.

4. Feasibility: C-17; P-4; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Getting the outcome of transfers should not be too difficult.

Does the Measure Meet Criteria for Endorsement: Y-21; N-0; A-0

Rationale: Steering Committee would like to see this measure as a composite score with measure 1493 and 1498.

If Applicable, Conditions/Questions for Developer:

- Have you considered an all or none composite for the PCI medication measures (1495, 1493, 1498)?

1495 P2Y12 Inhibitor at discharge for patients with percutaneous coronary intervention (PCI) (with stents)
Response: Developer submitted a new composite measure 0964
Composite measure versus composite measure plus individual component measures: The Committee vote to recommend only the composite and not the individual measures: Y- 11, N -8
RECOMMENDATION: DO NOT RECOMMEND AS AN INDIVIDUAL MEASURE

1493 Aspirin at discharge for patients with percutaneous coronary intervention (PCI)
New measure For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Proportion of adult patients (age 18 or older) who undergo a percutaneous coronary intervention (PCI) and are prescribed aspirin at discharge. Numerator Statement: Count of patients with a PCI procedure with aspirin prescribed at discharge. Denominator Statement: Count of patients with a PCI procedure. Exclusions: -Aspirin coded as contraindicated or blinded. -Discharge status of deceased. -Discharge location of "other acute care hospital," "hospice," or "against medical advice." Adjustment/Stratification: No risk adjustment necessary Level of Analysis: Facility/Agency Type of Measure: Process Data Source: Registry data National Cardiovascular Data Registry (NCDR®) CathPCI Registry® Measure Steward: ACC
Does the Measure Meet Criteria for Endorsement: Y-21; N-0; A-0 Rationale: The Steering Committee agreed to duplicate voting on this measure to be the same as measure 1495. Unanimous agreement to recommend that developer to combine 1495 and 1493.
If Applicable, Conditions/Questions for Developer: • Have you considered an all or none composite for the PCI medication measures (1495, 1493, 1498)? Response: Developer submitted a new composite measure 0964
Composite measure versus composite measure plus individual component measures: The Committee vote to recommend only the composite and not the individual measures: Y- 11, N--8
RECOMMENDATION: DO NOT RECOMMEND AS AN INDIVIDUAL MEASURE

1498 Statins at discharge for patients with percutaneous coronary intervention (PCI)

New measure

For More Information: Complete Measure Submission; Meeting/Call Proceedings

Description: Proportion of adult patients (age 18 or older) who undergo a percutaneous coronary intervention (PCI) and are prescribed a statin at discharge.

Numerator Statement: Count of patients with a PCI procedure with statin prescribed at discharge.

Denominator Statement: Count of patients with a PCI procedure.

Exclusions:

-Discharge status of deceased.

-Discharge location of "other acute care hospital," "hospice," or "against medical advice."

-Statins coded as contraindicated or blinded.

Adjustment/Stratification: N/A

Level of Analysis: Facility/Agency Type of Measure: Process

Data Source: Registry data National Cardiovascular Data Registry (NCDR®) CathPCI Registry®

Measure Steward: ACC

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Measure will encourage improvement in the rates of statin prescribing, which reduces the risk of coronary events and coronary artery disease following PCI.
- There is a performance gap. Prescribing rate fom the 5th to the 98th percentile was from 72% to 98%.
- Stratified analysis indicated the lower SES hospitals did as well as or better than others.

2. Scientific Acceptability of Measure Properties: C-18; P-3; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Content validity tested by review by an expert consensus panel.
- Measure describes appropriate exclusions as well as option for contraindications.
- Consistent results reported for derivation cohort and testing cohort.

3. Usability: C-20; P-1; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- This voluntarily reported measure is currently in use. Participating institutions receive an outcomes report each quarter with their individual results.

4. Feasibility: C-20; P-0; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Electronic sources are used.
- Reasonable information was provided about their efforts to reduce inaccuracies and follow-up on the process.

Does the Measure Meet Criteria for Endorsement: Y-21; N-0; A-0

Rationale:

If Applicable, Conditions/Questions for Developer:

- Have you considered an all or none composite for the PCI medication measures (1495, 1493, 1498)?

1498 Statins at discharge for patients with percutaneous coronary intervention (PCI)
Response: Developer submitted a new composite measure 0964
Composite measure versus composite measure plus individual component measures: The Committee vote to recommend only the composite and not the individual measures: Y-11, N -8
RECOMMENDATION: DO NOT RECOMMEND AS AN INDIVIDUAL MEASURE

CARDIAC REHABILITATION

Measures not recommended:

1496 Cardiac rehabilitation/secondary prevention (CR) program structure-based measurement set to set safety standards for CR programming
New measure For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Cardiac rehabilitation/secondary prevention (CR) program measurement set to assess the presence of four safety standards. Numerator Statement: The cardiac rehabilitation/secondary prevention (CR) program has policies in place that demonstrate all of the below: 1. A physician-director is responsible for the oversight of CR program policies and procedures and ensures that policies and procedures are consistent with evidence-based guidelines, safety standards, and regulatory standards. This includes appropriate policies and procedures for the provision of alternative CR program services, such as home-based CR. 2. An emergency response team is immediately available to respond to medical emergencies. (See numerator details for care setting details). 3. All professional staff have successfully completed the national Cognitive and Skills examination in accordance with the AHA curriculum for BLS with at least one staff member present who has completed the National Cognitive and Skills examination in accordance with the AHA curriculum for ACLS and has met state and hospital or facility medical-legal requirements for defibrillation and other related practices. 4. Functional emergency resuscitation equipment and supplies for handling cardiovascular emergencies are immediately available in the exercise area. Denominator Statement: All CR programs. Exclusions: None Adjustment/Stratification: No risk adjustment necessary Level of Analysis: Clinicians: Group; Facility/Agency; Integrated delivery system; Other Interdisciplinary teams of cardiac rehabilitation/secondary prevention professionals providing CR services. Type of Measure: Structure/management Data Source: Paper medical record/flowsheet; Organizational policies and procedures; Program policies and procedures and documentation of compliance using departmental records. This can be submitted electronically. Measure Steward: American Association of Cardiovascular and Pulmonary Rehabilitation/American College of Cardiology Foundation/American Heart Association (AACVPR/ACCF/AHA)
STEERING COMMITTEE EVALUATION
1. Importance to Measure and Report: Y-20; N-1 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • Cardiac rehabilitation is an important and effective care process. • Steering Committee questioned the evidence for the criteria. • Only looks at 40% of programs that are certified.
2. Scientific Acceptability of Measure Properties: C-3; P-11; M-3; N-4 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: • The program initially had to deny two-thirds of applications for remediation efforts, whereas more recently, all but two met criteria for safety.

1496 Cardiac rehabilitation/secondary prevention (CR) program structure-based measurement set to set safety standards for CR programming

- Measure is dependent on AACVPR certification, but can a program be just as compliant without being certified?
- Stewards state they are not aware of alternative data sources and note controversy regarding the applicability of the requirement for resuscitation equipment and supplies be available in the testing area when the testing area is in the home or other alternative settings.

3. Usability: C-2; P-12; M-4; N-3

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Currently in use for those programs that are currently certified.
- No data available for programs using the measure but are not certified. About 60% of the programs are not certified.
- NQF criteria does not require widespread national testing.

4. Feasibility: C-2; P-7; M-8; N-3

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Feasible if certified; not that feasible if not certified.

Does the Measure Meet Criteria for Endorsement: Y-6; N-15; A-0

Rationale:

- Linkage to being certified in order to meet the measure.
- Absence of non-certification data.
- Structural measure;
- Unclear relationship to outcomes

If applicable, Conditions/Questions for Developer:

RECOMMENDATION: Not recommended for endorsement

1494 Cardiac rehabilitation/secondary prevention (CR) program measurement set related to monitoring response to therapy and documenting program effectiveness

New measure

For More Information: Complete Measure Submission; Meeting/Call Proceedings

Description: Cardiac rehabilitation/secondary prevention (CR) program measurement set to assess the presence of a written policy in place that demonstrates program effectiveness.

Numerator Statement: The cardiac rehabilitation/secondary prevention (CR) program is monitoring a response to therapy, and the program effectiveness has a written policy in place to capture all four of the elements below:

1. Document the percentage of patients for whom the CR program has received a formal referral request who actually enroll in
the program.
2. Document for each patient a standardized plan to assess completion of the prescribed course of CR as defined on entrance to the program.
3. Document for each patient a standardized plan to assess outcome measurements at the initiation and again at the completion of CR, including at least one outcome measure for the core program components as outlined in the Proposed AACVPR/ACCF/AHA Performance Measure: Individualized Assessment and Evaluation of Modifiable Cardiovascular Risk Factors, Development of Individualized Interventions, and Communication With Other Health Care Providers.
4. Describe the program's methodology to document program effectiveness and initiate quality improvement strategies.

Denominator Statement: All CR programs.

Exclusions: None

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinicians: Group; Facility/Agency; Integrated delivery system; Program: Other

Type of Measure: Structure/management

Data Source: Paper medical record/flow-sheet; Organizational policies and procedures; Program policies and procedures and documentation of compliance using departmental records.
In addition, a National Outcomes Data Registry is being established by AACVPR to use in future to collect and analyze this data.

Measure Steward: AASVPR/ACCF/AHA

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-20; N-1

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Similar construct and comments as measure 1496.
- 55% patients are referred, but only 19% actually enroll.
- Not known if there is a gap in performance because no data are available beyond the remediation efforts of the overall certification.
- Structural measure

2. Scientific Acceptability of Measure Properties: C-3; P-15; M-3; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Disparities information included: less prescribed for elderly, women, and minorities.
- Results of reliability testing show good agreement (kappa inter-rater reliability testing), and Delphi-like peer review was used for validity testing.
- Four components in the numerator; three patient level and one system level.
- Impact of CR is four times the impact of timely PCI.
- No exclusions and no known disparities.

1494 Cardiac rehabilitation/secondary prevention (CR) program measurement set related to monitoring response to therapy and documenting program effectiveness

3. Usability: C-7; P-8; M-6; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Currently in use and publicly reported on several websites.
- Harmonized with other cardiac rehabilitation measures being reviewed.
- Stimulates quality improvement strategies for cardiac rehabilitation professionals, if they are certified.

4. Feasibility: C-1; P-12; M-4; N-4

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- If the patient fails to complete the program it may affect the program's ability to capture the individual outcomes and accurately reflect the program effectiveness.
- Feasible and relatively low cost, although dependent on the AASCPR.

Does the Measure Meet Criteria for Endorsement: Y-3; N-17; A-0

Rationale:

- Similar to 1496. Standard is measured through certification; however, 60% cardiac programs do not participate in the certification program.
- Structural measure
- Unclear relationship to outcomes

If Applicable, Conditions/Questions for Developer:

RECOMMENDATION: Do not recommend for endorsement

1497 Cardiac rehabilitation/secondary prevention (CR) program measurement set to assess risk for adverse cardiovascular events

New measure

For More Information: Complete Measure Submission; Meeting/Call Proceedings

Description: Cardiac rehabilitation/secondary prevention (CR) program measurement set to assess the presence of two assessments of risk for adverse cardiovascular events.

Numerator Statement: The cardiac rehabilitation/secondary prevention (CR) program performs assessments of risk for adverse cardiovascular events:

1. Documentation, at program entry, that each patient undergoes an assessment of clinical status (e.g., symptoms, medical history) in order to identify high-risk conditions for adverse cardiovascular events.
2. A policy to provide recurrent assessments for each patient during the time of participation in the CR program in order to identify any changes in clinical status that increase the patient's risk of adverse cardiovascular events.

Denominator Statement: All CR Programs.

Exclusions: None

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinicians: Group; Facility/Agency; Integrated delivery system

Type of Measure: Structure/management

Data Source: Organizational policies and procedures program policies and procedures and documentation of compliance using departmental records. This can be submitted electronically.

Measure Steward: AAVCPR/ACCF/AHA

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-19; N-2

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Much of the discussion from the previous two measures, 1496 and 1494, applies here.
- The measure submitters use program certification data to indicate a gap. Information submitted is unclear whether failure to obtain certification is directly related to the lack of the policies and behaviors included in the measure or for other reasons.

2. Scientific Acceptability of Measure Properties: C-1; P-13; M-6; N-1

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Much of the discussion from the previous two measures, 1496 and 1494, applies here.
- Stewards state that there is no standardized risk assessment method in use. This is a concern for a performance measure.
- The measure did not meet criteria for endorsement because there is no "one best or standard" method of screening.
- Reliability testing minimally addressed this specific measure.
- Evidence for scoring seems to be on the composite of all CR measures taken together, but not individually.

3. Usability: C-2; P-10; M-7; N-1

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Much of the discussion from the previous two measures, 1496 and 1494, applies here.

4. Feasibility: C-0; P-11; M-8; N-1

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d.

1497 Cardiac rehabilitation/secondary prevention (CR) program measurement set to assess risk for adverse cardiovascular events

Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- Much of the discussion from the previous two measures, 1496 and 1494, applies here.
- Electronic sources were not addressed.
- Review is audit of policies, not an audit of actual use in patients.

Does the Measure Meet Criteria for Endorsement: Y-2; N19; A-0

Rationale:

- The Steering Committee encouraged the measure developers to rework this measure in to one that would be much more usable.
- The Steering Committee believed it was important to note that its vote against the measures should not be interpreted as a rejection of the importance of, and the need for, a standard in America for cardiac rehabilitation programs.

If Applicable, Conditions/Questions for Developer:

RECOMMENDATION: Not recommended for endorsement

960 Cardiac rehabiltation composite

New measure

For More Information: Complete Measure Submission; Meeting/Call Proceedings

Description: This measure evaluates whether a cardiac rehabilitation/secondary prevention program has processes in place for individualized assessment and evaluation of modifiable cardiovascular risk factors, development of individualized interventions, and communication with other health care providers.

Numerator Statement: The cardiac rehabilitation/secondary prevention (CR) program has all 11 processes in place for an individualized assessment and evaluation of modifiable cardiovascular risk factors, development of individualized interventions, and communication with other healthcare providers.

Denominator Statement: All CR Programs.

Exclusions: None

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinicians: Group; Facility/Agency; Integrated delivery system

Type of Measure: Structure/management

Data Source: Organizational policies and procedures program policies and procedures and documentation of compliance using departmental records. This can be submitted electronically.

Measure Steward: AACVPR/ACCF/AHA

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-19; N-2

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- The discussion from the previous three measures applies here.
- The measure submitters use program certification data to indicate a gap. Information submitted is unclear whether failure to obtain certification is directly related to the lack of the policies and behaviors included in the measure or for other reasons.

2. Scientific Acceptability of Measure Properties: C-1; P-13; M-6; N-1

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Much of the discussion from the previous two measures, 1496 and 1494, applies here.
- Stewards state that there is no standardized risk assessment method in use. This is a concern for a performance measure.
- The measure did not meet criteria for endorsement because there is no "one best or standard" method of screening.
- Evidence for scoring seems to be on the composite of all CR measures taken together, but not individually.

3. Usability: C-2; P-10; M-7; N-1

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- See discussion of component measures.

4. Feasibility: C-0; P-11; M-8; N-1

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions—no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified; 4e. Data collection strategy can be implemented)

Rationale:

- The discussion from the previous three measures applies here.

960 Cardiac rehabiltation composite

- Electronic sources were not addressed.
- Review is audit of policies, not an audit of actual use in patients.

Does the Measure Meet Criteria for Endorsement?: Y-2; N19; A-0

Rationale:

- The Steering Committee encouraged the measure developers to rework this measure into one that would be much more usable.
- The Steering Committee believed it was important to note that its vote against the measures should not be interpreted as a rejection of the importance of, and the need for, a standard in America for cardiac rehabilitation programs.
- Specific issues:
  - The absence of noncertified validity and reliability data.
  - The linkage of these measures to certification.
  - The absence of outcomes or favorable outcomes related to certification.
  - The need for patient-level measures.

If Applicable, Conditions/Questions for Developer:

RECOMMENDATION: Do not recommend for endorsement

ATRIAL FIBRILLATION

Endorsed measures:

1524 Assessment of thromboembolic risk factors (CHADS 2)
New measure For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: : Patients with non-valvular atrial fibrillation or atrial flutter in whom assessment of thromboembolic risk factors using the CHADS2 risk criteria has been documented Numerator Statement: Patients with nonvalvular atrial fibrillation or atrial flutter in whom assessment of all of the specified thromeboembolic risk factors is documented For patients with nonvalvular atrial fibrillation or atrial flutter, assessment of thromboembolic risk should include the following factors: Electronic Specifications: • Risk factors: • Prior stroke or transient ischemic attack--> High risk • Age = 75 years--> Moderate risk • Hypertension--> Moderate risk • Diabetes mellitus--> Moderate risk • Heart failure or impaired LV systolic function--> Moderate risk Denominator Statement: All patients 18 years of age or older with nonvalvular atrial fibrillation or atrial flutter other than those specifically excluded Exclusions: • Patients with mitral stenosis or prosthetic heart valves • Patients with transient or reversible causes of atrial fibrillation (e.g., pneumonia or hyperthyroidism) • Postoperative patients • Patients who are pregnant • Medical reason(s) documented by a physician, nurse practitioner, or physician assistant for not assessing risk factors. Examples of medical reasons for not assessing risk factors include but are not limited to the following: o Allergy to warfarin o Risk of bleeding Adjustment/Stratification: No risk adjustment necessary None Level of Analysis: Clinician : Individual Type of Measure: Process Data Source: Electronic Clinical Data, Paper medical record/flow-sheet, Registry data Measure Steward: American College of Cardiology (ACC) Foundation/American Heart Association (AHA)/American Medical Association´s Physician Consortium for Performance Improvement, 2400 N. Street NW, Washington, DC, 20037
STEERING COMMITTEE EVALUATION
1. Importance to Measure and Report: Y-18; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • Hospital admissions for atrial fibrillation have increased 66% in the past decade. • Approximately 60,000 strokes each year are preventable with appropriate risk stratification and anticoagulation with warfarin. • Strong evidence base. • Vague title. Steering Committee recommended changing the title to be more specific.
2. Scientific Acceptability of Measure Properties: C-12; P-6; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)*

1524 Assessment of thromboembolic risk factors (CHADS 2)

Rationale:

- Uses CHAD2 score, which are in AHA/ACC Guidelines.
- Rigorously tested. Reliable and valid.
- Requires good documentation; may underestimate. More documentation needed if warfarin is not recommended.
- Testing of measure used Pinnacle registry data.

3. Usability: C-13; P-7; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Promotes better physician documentation.
- Requires good documentation or results will underestimate performance.

4. Feasibility: C-7; P-12; M-0; N-1

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- All of the data elements are available through a paper source, electronic health record (EHR) or electronic medical record (EMR). No exclusions..

Does the Measure Meet Criteria for Endorsement?:: Y-17; N-3; A-0

Rationale:

- Documentation that calculating a CHADS2 score improves the match of anticoagulation with the risk factors for stroke. However, the target of the measure, prevention of stroke due to atrial fibrillation is important, and the measure appears feasible.
- The most frequent reason for low scoring is failure of the physician to document the CHADS2 score.

If applicable, Conditions/Questions for Developer: Specifically mention the CHADS2 criteria in the measure specification. Title is vague.

Developer Response: The developer revised the specifications to include the CHADS2. The developer changed the title to "Assessment of Thromboembolic Risk Factors (CHADS2)".

RECOMMENDATION: Recommend for endorsement

Public and Member Comment

Comments included:

- While CHADS2 criteria are included in the measure specifications for both measures, there are other clinical tools that may be used.
- Identification of the denominator population to identify atrial fibrillation do not fit well into current ICD9 coding. Further evaluation of the measure and denominator population prior to inclusion is recommended.
- The measure developer is courage to continue refining this measure to align with the clinical guideline and consider additional risk factors that are not included in CHADS2. As stroke risk assessment serves as the foundation for certain therapies, such as the prescription of anticoagulant drugs, a measure with limited risk assessment criteria has the potential to inhibit at-risk patients from receiving necessary therapies.
- This check-the-box measure is inadequate to advance patient care. Documentation is a basic competency of care and is insufficient to merit endorsement in this area.

Developer response:

- We recognize that some data elements for implementors may be challenging. While the specific thresholds of the use of anticoagulation is not as clearly documented, the CHADS2 score is the best schemes for stratification of

1524 Assessment of thromboembolic risk factors (CHADS 2)
stroke risk identify patients who benefit most and least from anticoagulation. • ICD-9 coding 427.31 and 427.32 does not distinguish non-valvular from valvular patients. ICD10 coding also does not distinguish these two categories. Measure exceptions further specifies the target measure population. • The measure does not preclude clinicians from prescribing oral anticoagulants other than warfarin neither does the measure penalize clinicians who choose not to give medications for the moderate risk patients. ACCF/AHA/PCPI performance measurement development relies primarily on guideline recommendations Steering Committee: The Committee noted the developer's responses and also disagreed with the comment that it is a "check-the-box" measure. The specifications require a complex, multi-part assessment that is the foundation of proper patient management. No change in recommendation.

1525 Chronic anticoagulation therapy

New measure

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Prescription of warfarin or another anticoagulant drug that is FDA approved for the prevention of thromboembolism for all patients with nonvalvular atrial fibrillation or atrial flutter at high risk for thromboembolism, according to CHADS2 risk stratification.

Numerator Statement: All patients with nonvalvular atrial fibrillation or atrial flutter at high risk of thromboembolism (i.e., those with any high-risk factor or more than 1 moderate-risk factor) who are prescribed warfarin OR another anticoagulant drug that is FDA approved for the prevention of thromboembolism.

Denominator Statement: Patients with nonvalvular AF or atrial flutter for whom assessment of the specified thromboembolic risk factors documented one or more high-risk factor or more than one moderate-risk factor

Exclusions:

- Patients with valvular AF, specifically those with prosthetic heart valves or mitral stenosis
- Patients at low risk for thromboembolism (i.e., those with none of the risk factors listed above)
- Patients with only one moderate risk factor
- Postoperative patients
- Patients with transient or reversible causes of AF (e.g., pneumonia or hyperthyroidism)
- Patients who are pregnant
- Medical reason(s) documented by a physician, nurse practitioner, or physician assistant for not prescribing warfarin. Examples of medical reasons for not prescribing warfarin include, but are not limited to:
  - Allergy
  - Risk of bleeding
- Documentation of patient reason(s) for not prescribing warfarin or another anticoagulant drug that is FDA approved for the prevention of thromboembolism (e.g., economic, social, and/or religious impediments, noncompliance or patient refusal)

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinician : Individual Type of Measure: Process

Data Source: Electronic Clinical Data, Paper medical record/flow-sheet, Registry data

Measure Steward: American College of Cardiology Foundation/ American Heart Association/American Medical Association´s Physician Consortium for Performance Improvement, 2400 N. Street NW, Washington, DC 20037

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-20; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Importance demonstrated by decrease in stroke by 66% for patients with atrial fibrillation treated with warfarin.
- 45-55% of candidates for anticoagulation do not receive risk assessment or treatment.
- Race and gender data disparities are evident.
- Class I Level A evidence. CHADS2 score has been validated.

2. Scientific Acceptability of Measure Properties: C-1; P-4; M-10; N-5 (As submitted)

If conditions are met: C-3; P-13; M-3; N-1

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Steering Committee discussed including the newer anticoagulants or other FDA-approved drugs besides warfarin.
- Measure doesn't specify CHADS2. Should be consistent with measure 1524.
- Second vote with conditions set by Steering Committee (as submitted in addition to the following): 1) Include

1525 Chronic anticoagulation therapy
CHADS2 in specifications. 2) Numerator to include "other FDA-approved drugs".; and 3) Exclusions include patient or physician preference reason for alternative treatment.
3. Usability: C-13; P-7; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: • Not used in public reporting yet but will be eligible for use in PQRS in 2012.
4. Feasibility: C-14; P-5; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: • Recognizes the need for better documentation to achieve more accurate assessment of physician performance. • Data are generated through the usual care processes. Electronic sources are available.
Does the Measure Meet Criteria for Endorsement?: (as submitted) Y-7; N-12 With Conditions: 1) Include all Food and Drug Administration (FDA)-approved drugs for this condition, i.e., dabigatran; and 2) Specify CHADS2 risk assessment: Y-16; N-3 Rationale: • Important process of care—high morbidity. • Developer complied with conditions. • Evidence-based action based on standardized risk assessment.
If applicable, Conditions/Questions for Developer: • What about newer anticoagulants besides warfarin? • Why not use CHADS2 scoring for consistency? Developer Response: • Developer revised the measure to include "all FDA approved drugs for this condition." • Developer revised the measure to specify CHADS2 scoring.
RECOMMENDATION: Recommend for endorsement
Public and Member Comment Comments included: • Concern about broad medical and patient exclusions. • While CHADS2 criteria are included in the measure specifications for both measures, there are other clinical tools that may be used. • Support of the inclusion of FDA-approved anticoagulants in addition to warfarin, which better reflects up-to-date evidence for treating AF. Suggest revising the measure to include all AF patients at risk for thromboembolism identified in the ACC/AHA/ESC AF clinical guideline, which supports consideration of a more comprehensive set of risk factors beyond CHADS2. • The measure developer should continue to refine this measure to align with the clinical guideline and consider additional risk factors that are not included in CHADS2. As stroke risk assessment serves as the foundation for anticoagulation therapy, a measure with limited risk assessment criteria has the potential to inhibit at-risk patients from receiving necessary therapies. Developer response: • Based on ICD-9 coding 427.31 and 427.32 does not distinguish non-valvular from valvular patients. ICD10 coding

1525 Chronic anticoagulation therapy
also does not distinguish these two categories. However, we did append CPT II codes which help identify thomboembolism risks. Lastly, measure exceptions further specifies the target measure population. • The measure does not preclude clinicians from prescribing oral anticoagulants other than warfarin neither does the measure penalize clinicians who choose not to give medications for the moderate risk patients. ACCF/AHA/PCPI performance measurement development relies primarily on guideline recommendations. Steering Committee: Developer's responses were noted.

Not recommended:

1505 Adult patient(s) with atrial fibrillation taking amiodarone that had serum ALT or AST test in last 12 reported months
New measure For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: This measure identifies adults with atrial fibrillation, 18 years of age or older, taking amiodarone that had at least one serum ALT or AST test in last 12 months of the report period. Numerator Statement: Patients who are diagnosed with atrial fibrillation and who are treated with amiodarone, who have had a serum AST/ALT test during the following time period: last 12 months of the report period through 90 days after the end of the report period Denominator Statement: All patients 18 years of age or older who have a diagnosis of atrial fibrillation and who are actively being treated with amiodarone. Exclusions: Criteria for inclusion in the denominator are as follows: 1. All male and female patients who are 18 years or older at the end of the report period 2. Patient must have been continuously enrolled in medical benefits throughout the 12 months prior to the end of the report period AND pharmacy benefit plan for 6 months prior to the end of the report period. The standard EBM Connect® enrollment break logic allows unlimited breaks in coverage of no more than 45 days and no breaks greater than 45 days. 3. The patient is listed in the Disease Registry Input File for this condition OR Patient fulfills both criteria A and B: A. During the 24 months prior to the end of the report period, the patient has two or more of the following services or events, at least 14 days apart, with a diagnosis of atrial fibrillation (code set DX0014): • Professional Encounter (code set PR0107, RV0107) • Professional Supervision (code set PR0108) • Facility Event—Confinement/Admission (i.e., hospitalization) • Facility Event—Emergency Room • Facility Event—Outpatient Surgery AND B. During the 12 months prior to the end of the report period, the patient has one or more of the following services or events, with a diagnosis of atrial fibrillation (code set DX0014): • Professional Encounter (code set PR0107, RV0107) • Professional Supervision (code set PR0108) • Facility Event—Confinement/Admission (i.e., hospitalization) • Facility Event—Emergency Room • Facility Event—Outpatient Surgery 4. The patient must have filled a prescription for amiodarone (code set RX-9) during the following time period: last 120 days of the report period through 90 days after the end of the report period AND the duration of treatment was greater than 90 days. Code Set Code Set Description Diagnosis Code DX0014 Atrial Fibrillation 427.3 DX0014 Atrial Fibrillation 427.31 DX0014 Atrial Fibrillation 427.32 Code Set Code Set Description Procedure Code PR0107 Professional encounter 99201-99205, 99211-99223 (except 99216), 99231-99245 (except 99237, 99240), 99251-99255, 99261-99263, 99271-99275, 99281-99285, 99301-99313, 99315, 99316, 99318, 99341-99350 (except 99346), 99381-99387, 99391-99397, 99401-99404, 99411-412, 99420, 99429, S0270-S0273 Code Set Code Set Description Procedure Code PR0108 Professional supervision 99321-99328, 99331-99337, 99339-99340, 99371-99380 (except 99376), 99441-99444,

1505 Adult patient(s) with atrial fibrillation taking amiodarone that had serum ALT or AST test in last 12 reported months

G0179- G0182

Code Set Code Set Description Revenue Code

RV0107 Professional encounter 0510-0517, 0519-0526, 0528-0529, 0981, 0983

Rx code set Rx code set description ndc Amiodarone

Adjustment/Stratification: Does not apply; No risk adjustment necessary

Level of Analysis: Type of Measure: Process

Data Source: A 15 million patient population sample was chosen to analyze the potential patient safety gap in care. The sample was derived from more than 60 million patients based on criteria including national geographic representation, commercial health coverage, and patient age less than 65.

Measure Steward: Ingenix

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-1; N-17

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Too narrow; there are other toxicities for this drug. Why choose this one?
- Why not the multitude of tests for potential issues with many drugs?
- This drug warrants a composite of multiple side effects monitoring.
- Low numbers of incidence; measure overload.

Does the Measure Meet Criteria for Endorsement?: No

Rationale: This measure did not pass Importance to Measure and Report.

If applicable, Conditions/Questions for Developer:

RECOMMENDATION: Do not recommend

IMPLANTABLE CARDIOVERTER DEFIBRILLATORS (ICD)

Endorsed measures:

1522 ACE/ARB therapy at discharge for ICD implant patients with LVSD
New measure For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Proportion of ICD implant patients with a diagnosis of LVSD who are prescribed ACE-I or ARB therapy at discharge Numerator Statement: Count of patients with ACE-I or ARB therapy prescribed at discharge Denominator Statement: Count of patients with an ICD implant with moderate or severe LVSD (LVEF<40%) without contraindication to ACE inhibitors and ARBs Exclusions: • Patients who expired prior to discharge • Patients with ACE-I and ARB therapy contraindicated or blinded Adjustment/Stratification: N/A Level of Analysis: Facility/Agency Type of Measure: Process Data Source: Registry data Measure Steward: American College of Cardiology Foundation, 2400 N Street NW, Washington, DC 20037
STEERING COMMITTEE EVALUATION
1. Importance to Measure and Report: Y-20; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • Patient group of high morbidity and mortality. • Still a performance gap, although narrowing with the implementaion of current quality improvement programs. • Strong outcome evidence in terms of efficacy.
2. Scientific Acceptability of Measure Properties: C-18; P-2; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: • Reliability and validity of the measure are strong. • Indication for ICD is based on maximum medical therapy.
3. Usability: C-19; P-0; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: • Adds value to exisiting measures. • Useful for public reporting.
4. Feasibility: C-20; P-0; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: • Easily obtained from the electronic source/registry.
Does the Measure Meet Criteria for Endorsement?: Y-19; N-0; A-0 Rationale: • Recommend an all-or-none composite for medications.

1522 ACE/ARB therapy at discharge for ICD implant patients with LVSD

- Recommend as a stand-alone as well as part of composite 0965.
- Recommend amending the wording to clarify inclusion and include a broader scope of patients (biventricular without ICD).

If applicable, Conditions/Questions for Developer: Is ICD being used here as a generic or a specific term?
Developer Response: This applies to patients receiving any rhythm management device.
Steering Committee Follow-up: Why not include biventricular device without ICD?
Developer Follow-up: Could clarify to include patients who get biventricular device without ICD.

RECOMMENDATION: Recommend for endorsement as an individual measure as well as a component of the composite 965

Public and Member Comment

Comments included:

- This measure has a very narrow patient population focus, and it would be helpful for the developer to clarify the importance of having so many exclusions for this denominator.
- Including all LVSD patients with documented abnormalities that subsequently received ACE/ARB therapy at discharge should be considered.
- Why is a patient receiving an ICD not already on an ACEI/ARB/aldosterone blocker? They probably should not have gotten an ICD until they were appropriately treated (unless it was for secondary prevention).
- Suggest limiting to specific drugs that are FDA approved for use in HF/LVSD: ARBs: candesartan (has a mortality claim) and valsartan.
- An ARB should be used when available for black patients as ACEI in black patients cause more angioedema.

Developer response:

- The denominator exclusions for this measure are discharge status of deceased, and contraindicated or blinded for the medication. These exclusions follow the specifications used by PCPI, ACC, and AHA for similar discharge medication measures.
- Agree given guideline recommendations that patients with LVSD receive optimal medical therapy (including ACE/ARB and beta blocker) prior to ICD implantation. The purpose of this measure is to assess the extent to which this occurs. Existing evidence from the NCDR ICD Registry suggests that this is an important area for improvement.
- The measure is aligned with existing guidelines for HF therapy and the existing CMS measure for patients hospitalized with HF, neither of which specify the use of particular ARBs.
- This measure captures the use of either ACE or ARB and it allows the clinician flexibility in deciding which agent is appropriate for a specific patient based upon the patient's characteristics, including race.

Steering Committee: ICD patients are an important population that has a special clinical registry to track the performance.

1528 Beta blocker at discharge for ICD implant patients with a previous MI

New measure

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Proportion of ICD implant patients with a diagnosis of previous myocardial infarction (MI) who are prescribed a beta blocker at discharge

Numerator Statement: Count of patients discharged on beta-blocker therapy

Denominator Statement: Count of patients with an ICD implant without contraindication to beta-blockers

Exclusions:

-Patients who expired

-Beta-blocker therapy contraindicated or blinded.

Contraindicated supporting definition:

Medication was not prescribed because of a contraindication.

Contraindications must be documented explicitly by the physician, or clearly evidenced within the medical record

Blinded supporting definition:

Patient was in research study or clinical trial and administration of this specific medication is unknown

Adjustment/Stratification: N/A

Level of Analysis: Facility/Agency Type of Measure: Process

Data Source: Registry data

Measure Steward: American College of Cardiology Foundation (ACCF), 2400 N Street NW, Washington, DC 20037

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-19; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- High impact and large population at risk.
- There is a relatively small but significant "performance" gap with median performance of around 87-90%, quartile 1 at 83%, and quartile 3 at 96%.

2. Scientific Acceptability of Measure Properties: C-19; P-1; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Aligned with specifications from other CMS measures for ICD.
- Well-defined measure with well-accepted, well-documented exclusions.
- Good face validity and supported by evidence-based guidelines.
- Data analysis shows that this measure discerns differences in performance—mostly from ICD registry of 144,000 patient records in 1,305 hospitals from 2008-2009.
- No disparities have been reported.

3. Usability: C-20; P-0; M-1; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Measure is meaningful, understandable, and easy to use in different formats.

4. Feasibility: C-19; P-1; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

1528 Beta blocker at discharge for ICD implant patients with a previous MI

- NCDR electronic database is well tested and takes many steps to minimize inaacuracies, including thorough training of data abstractors, certification process of hospital EMR or NCDR's web-based tool, frequent edit checks, frequent validity checks, and an onsite audit program.

Does the Measure Meet Criteria for Endorsement?: Y-20; N-0; A-0

Rationale:

- Recommend as a stand-alone as well as part of composite 965.

If applicable, Conditions/Questions for Developer:

RECOMMENDATION: Recommend for endorsement as an individual measure as well as a component of the composite 965

Public and Member Comment

Comments included:

- Populations that are eligible for these measures should be captured under either AMI or Heart Failure measures. The need for such a niche measure is unclear.
- Medications are typically altered at the time of implant. Medication adjustment may be required after the patient has a device implanted so this measure in certain circumstances may not serve the patient well. Most ICDs are Pacers.

Developer response:

- Harmonization with existing HF and AMI measures is addressed in the measure application. This measure is felt to have additive value to the CMS HF and AMI measures because those measures require a principal diagnosis code of HF or AMI, thus patients receiving ICDs are typically not included in the existing CMS measures. There is evidence from the NCDR ICD Registry that optimal medical therapy in patients receiving an ICD is an important opportunity for improvement.

Steering Committee: ICD patients are an important population that has a special clinical registry to track the performance.

1529 Beta blocker at discharge for ICD implant patients with LVSD

New measure

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Proportion of ICD implant patients with a diagnosis of LVSD who are prescribed beta blocker therapy on discharge

Numerator Statement: Count of patients with beta blocker therapy prescribed on discharge

Denominator Statement: Count of patients with an ICD implant with LVSD without contraindication to beta blockers

Exclusions: Procedure type=initial generator implant=yes or generator change=yes
Most recent LVEF<40%

Adjustment/Stratification: N/A Discharge status=deceased
Beta blocker (any)=contraindicated or blinded
Contraindicated supporting definition:
Medication was not prescribed because of a contraindication.
Contraindications must be documented explicitly by the physician, or clearly evidenced within the medical record
Blinded supporting definition:
Patient was in research study or clinical trial and administration of this specific medication is unknown

Level of Analysis: Affects large numbers; Frequently performed procedure; Leading cause of morbidity/mortality; High resource use; Severity of illness

Type of Measure: Process

Data Source: N/A

Measure Steward: American College of Cardiology Foundation, 2400 N Street NW, Washington, DC 20037

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-20; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- High-risk population and impact gap.

2. Scientific Acceptability of Measure Properties: C-20; P-0; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Tested for reliability and validity.

3. Usability: C-18; P-0; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Information produced is meaningful and easy to understand.
- Data are currently being used in registries.

4. Feasibility: C-19; P-0; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

Does the Measure Meet Criteria for Endorsement?: Y-20; N-0; A-0

Rationale:

- Recommended as a stand-alone as well as part of composite 0965.
- Patients not captured in beta blocker after AMI measure (1528) because ICD is the primary diagnosis.
- Evaluation the same as 1528.

1529 Beta blocker at discharge for ICD implant patients with LVSD

- Recommended an all-inclusive measure for beta blockers.

If applicable, Conditions/Questions for Developer:

RECOMMENDATION: Recommend for endorsement as an individual measure as well as a component of the composite 965

Public and Member Comment

Comments included:

- The measure is too specific to be generalized to the population.
- Populations that are eligible for these measures should be captured under either AMI or Heart Failure measures. The need for such a niche measure is unclear.
- Patients who have not received optimal doses of RAAS blockade and beta-blockers should be treated with these drugs for 3 months before being evaluated for an ICD. A substantial proportion will no longer meet the LV function criteria for ICD implantation after receiving 3 months of optimal medical therapy, and these usually have a good prognosis.
- Suggest limiting to specific drugs that are FDA approved for use in LVSD: carvedilol, extended release metoprolol succinate.

Developer response:

- Harmonization with existing HF and AMI measures is addressed in the measure application. This measure is felt to have additive value to the CMS HF and AMI measures because those measures require a principal diagnosis code of HF or AMI, thus patients receiving ICDs are typically not included in the existing CMS measures. There is evidence from the NCDR ICD Registry that optimal medical therapy in patients receiving an ICD is an important opportunity for improvement.
- Agree given guideline recommendations that patients with LVSD receive optimal medical therapy (including ACE/ARB and beta blocker) prior to ICD implantation. The purpose of this measure is to assess the extent to which this occurs. Existing evidence from the NCDR ICD Registry suggests that this is an important area for improvement.
- The ICD registry does not currently collect the specific beta blocker prescribed. This measure includes general beta blocker use in harmonization with similar endorsed measures for beta blocker use.

Steering Committee: ICD patients are an important population that has a special clinical registry to track the performance.

0965 Patients with an ICD implant who receive prescriptions for all medications (ACE/ARB and beta blockers) for which they are eligible for at discharge

New measure

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Proportion of patients with an ICD implant who receive prescriptions for all medications (ACE/ARB and beta blockers) for which they are eligible for at discharge (all-or-none composite measure of two medication classes)

Numerator Statement: Patients who receive all medications for which they are eligible.

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

2. Beta blockers prescribed at discharge (if eligible for beta blockers as described in denominator)

Denominator Statement: All patients with an ICD implant surviving hospitalization who are eligible to receive any one of the two medication classes:

1. Eligiblility for ACE/ARB: Patients who have an ejection fraction (EF) of <40% AND do not have a documented contraindication to ACE/ARB documented OR

2. Eligibility for beta blockers: Patients who do not have a documented contraindication to beta blocker therapy and have either:

a. EF of <40% OR

b. A previous myocardial infarction (MI)

Exclusions: Discharge status of expired; not eligible for either ACE/ARB or beta blockers

Adjustment/Stratification: N/A

Level of Analysis: Hospital (inpatient and outpatient)

Type of Measure: Process

Data Source: N/A

Measure Steward: American College of Cardiology Foundation, 2400 N Street NW, Washington, DC 20037

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-20; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- High-risk population and impact gap.
- Composite combines three medication measures.

2. Scientific Acceptability of Measure Properties: C-20; P-0; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Tested for reliability and validity.

3. Usability: C-18; P-0; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Information produced is meaningful and easy to understand.
- Data are currently being used in registries.

4. Feasibility: C-19; P-0; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale: Uses same data as the individual measures.

Does the Measure Meet Criteria for Endorsement?: Y-20; N-0; A-0

0965 Patients with an ICD implant who receive prescriptions for all medications (ACE/ARB and beta blockers) for which they are eligible for at discharge
Rationale: • All or none composite.
If applicable, Conditions/Questions for Developer:
RECOMMENDATION: Recommend for endorsement
Public and Member Comment Comments included: • This measure is too specific to be generalized to the population. Steering Committee: ICD patients are an important population that has a special clinical registry to track the performance. This all-or-none composite measure was specifically developed at the request of the Steering Committee to increase the number of composite measures.

Not recommended:

1530 Prophylactic antibiotics prior to ICD (lead or implant) procedure
New measure For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Proportion of patients that receive an ICD implant or lead procedure that receive antibiotics within 1 hour (if fluoroquinolone or vancomycin, 2 hours) prior to procedure Numerator Statement: Count of patients that receive antibiotics prior to the ICD implant or leads procedure Denominator Statement: Count of patients with an ICD implant or lead procedure Exclusions: Count of patients with arrival/discharge dates from data submissions that pass NCDR data inclusion thresholds Adjustment/Stratification: N/A Prophylactic antibiotics within 1 hour of procedure start time=No—not given, medical reason documented, including: • Patients with a documented contraindication to receiving prophylactic antibiotics prior to the ICD implant • Patients receiving continuous antibiotics >24 hours prior to the implant Level of Analysis: Affects large numbers; Frequently performed procedure; Leading cause of morbidity/mortality; High resource use; Severity of illness Type of Measure: Process Data Source: N/A Measure Steward: American College of Cardiology Foundation (ACCF), 2400 N Street NW, Washington, DC, 20037
STEERING COMMITTEE EVALUATION
1. Importance to Measure and Report: Y-3; N-17 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • Should be incorporated into SCIP measure • High current performance—median is 100% • Little gap— criteria 1b not met.
Does the Measure Meet Criteria for Endorsement?: Not recommended Rationale: Did not meet criteria for Importance to Measure and Report • Unclear at this point if there is a performance gap. • No data on reliability of measure or disparities.
If applicable, Conditions/Questions for Developer:
RECOMMENDATION: Do not recommend

HEART FAILURE

Endorsed measures:

0079 Heart failure: Left ventricular ejection fraction assessment (outpatient setting)
Maintenance review For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of patients aged 18 years and older with a diagnosis of heart failure for whom the quantitative or qualitative results of a recent or prior (any time in the past) LVEF assessment is documented within a 12-month period Numerator Statement: Patients for whom the quantitative or qualitative results of a recent or prior (any time in the past) LVEF assessment is documented* within a 12-month period *Documentation must include documentation in a progress note of the results of an LVEF assessment, regardless of when the evaluation of ejection fraction was performed. Qualitative results correspond to numeric equivalents as follows: • Hyperdynamic: corresponds to LVEF greater than 70% • Normal: corresponds to LVEF 50% to 70% (midpoint 60%) • Mild dysfunction: corresponds to LVEF 40% to 49% (midpoint 45%) • Moderate dysfunction: corresponds to LVEF 30% to 39% (midpoint 35%) • Severe dysfunction: corresponds to LVEF less than 30% Denominator Statement: All patients aged 18 years and older with a diagnosis of heart failure Exclusions: None Adjustment/Stratification: No risk adjustment necessary Level of Analysis: Clinician : Individual Type of Measure: Process Data Source: Electronic administrative data/claims, Electronic Clinical Data, Paper medical record/flow-sheet, Registry data Measure Steward: American Medical Association, 515 N State St., Chicago, IL 60654
STEERING COMMITTEE EVALUATION
1. Importance to Measure and Report: Y-19; N-1 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • Heart failure is a common, high-mortality condition that comprises two entities—systolic and diastolic heart failure. The ejection fraction needs to be known in order to differentiate the two conditions. • Evidence is Level C, Class I recommendation. • Important measure and is used to base other measures. • Will this be interpreted as needing a new test every 12 months even though the specification requires that the test results, even if done in the past, be in the current documentation?
2. Scientific Acceptability of Measure Properties: C-12; P-6; M-1; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: • Well-defined and has been shown to be reliable and valid. • There are no exclusions. • Risk adjustment is not necessary. • Disparities have not been identified.
3. Usability: C-12; P-6; M-2; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale:

0079 Heart failure: Left ventricular ejection fraction assessment (outpatient setting)

- The measure is meaningful, understandable, and provides distinct value.
- Selection codes are harmonized with measure 0135.
- Some concern with promoting overuse of LVSD testing by misinterpreting the measure.

4. Feasibility: C-7; P-11; M-1; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- Data can be collected with paper or electronic medical record, claims, or registry data.
- Concern that the measure may drive overuse.

Does the Measure Meet Criteria for Endorsement?: Y-18; N-1; A-0

Rationale:

- Basis of other treatments.
- Well-defined; demonstrated to be reliable and valid.

If applicable, Conditions/Questions for Developer: The Steering Committee suggested changing title and description to more accurately reflect what is measured.

RECOMMENDATION: Recommend for endorsement

Public and Member Comment

Comments included:

- Although this measure is intended for an outpatient setting, in the numerator it states that documentation must include documentation in a progress note of the results of an LVEF assessment, regardless of when the evaluation of ejection fraction was performed, which may involve documentation of an LVEF from an in-patient hospital setting. In-patient hospital data may not be readily available.
- It is a waste of resources to collect and report on mere completion of an assessment.
- Request clarification in the specifications about EFs done in prior visits or documented in the Electronic Health Record. A provider may acknowledge these procedures, but not provide billing codes for a visit done in the office/outpatient setting.
- Functional outcomes such as this are the primary correlate of health-related quality of life (HRQL). HRQL is now recognized as the key patient-centered outcome. Thus, to measure only the indicators of provider care without acknowledging the patients perspective seems ill-advised. I strongly encourage you to reconsider this stance.

Developer response:

- While the measure requires that a patient's LVEF status be documented at least once within a 12 month period, the measure does not specify a time period for the assessment of LVEF - this assessment may have been performed anytime previously or within the last 12 months. Evaluation of LVEF in patients with heart failure provides important information that is required by any clinician managing the patient's outpatient care to appropriately direct treatment.
- This measure is intended to encourage assessment of a patient's LVEF status in order to identify patients who may be candidates for particular therapeutic options. An EHR could be searched for the relevant data to determine results of a previous LVEF assessment. For claims-based reporting, a provider would have to document the results of an LVEF assessment, regardless of when the evaluation of ejection fraction was performed.
- This is an assessment measure, not an outcome measure. The assessment only, without regard to subsequent intervention or follow-up is not proximal to the outcome which is the actual functional status of the patient.

Steering Committee: Reviewed comments and developers responses. No change in recommendations.

0081 Heart Failure: Angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy for left ventricular systolic dysfunction

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

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 ACE inhibitor or ARB therapy either within a 12-month period when seen in the outpatient setting or at hospital discharge

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 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.

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.

Exclusions:

- Documentation of medical reason(s) for not prescribing ACE inhibitor or ARB therapy; Append modifier to CPT II code 4009F-1P
- Documentation of patient reason(s) for not prescribing ACE inhibitor or ARB; Append modifier to CPT II code 4009F-2P
- Documentation of system reason(s) for not prescribing ACE inhibitor or ARB; Append modifier to CPT II code 4009F-3P

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinician : Individual Type of Measure: Process

Data Source: Electronic administrative data/claims, Electronic Clinical Data, Paper medical record/flow-sheet, Registry data Retooled eMeasure

Measure Steward: American Medical Association, 515 N State St., Chicago, IL 60654

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-18; N-1

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- The topic of measurement (ACE/ARB for HF with low EF) is of high impact, there are definite quality problems, and there is RCT evidence that prescribing ACE/ARB improves outcomes.
- Signifigant performance gap in the outpatient setting and strong outcome in evidence.

2. Scientific Acceptability of Measure Properties: C-19; P-1; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Very well specified.
- Reliability and validity are both extensively discussed in the PCPI review.
- Exlcusions justified and consistent with other ACE and ARB measures.

3. Usability: C-13; P-7; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- The information produced by the measure is meaningful and useful.

0081 Heart Failure: Angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy for left ventricular systolic dysfunction

- It is harmonized with measure 0162.

4. Feasibility: C-16; P-3; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- The data elements for the measure are routinely generated from phamacy claims.
- The data tend to be accurate, and being in use already, feasibility has been documented.

Does the Measure Meet Criteria for Endorsement?: Y-19; N-0; A-0

Rationale:

- ACE/ARB for HF with low EF in the ambulatory setting offers important therapeutic benefits.
- Significant disparities and variations in care exist.
- The measure is already used successfully.

If applicable, Conditions/Questions for Developer: Please explain why you're requesting endorsement of this measure at an individual clinician level of measurement to avoid duplication (measure 0162).

Response: The intent is to really enhance care on the outpatient side, looking at individual clinicians on the outpatient performance.

RECOMMENDATION: Recommend for endorsement

Public and Member Comment

Comments included:

- The excessive patient, system, and medical exclusions in this measure should be revisited so that they all meet the following criteria: evidence-based, highly specific, and explicitly defined.
- Obtaining data to calculate these measures could be challenging for certain end users. Prescription of ACE inhibitor or ARB therapy is occurring at the time of hospital discharge, however to collect the data for individual clinicians would be very labor intensive. Measuring this at both levels may lead to duplication of medications and increase medication errors.
- Suggest limiting to specific drugs that are FDA approved for use in HF/LVSD: ARBs: candesartan (has a mortality claim) and valsartan.
- An ARB should be used when available for black patients as ACEI in black patients cause more angioedema.

Developer response:

- These measures have been tested and found to be generally feasible in EHR, paper, and claims data sources. This is a clinician-level measure for the outpatient setting.
- As specified, this measure applies to patients with CAD and LVSD OR patients with CAD and diabetes. The list of medications/drug names included in the measure specifications is based on clinical guidelines and other evidence. The specified drugs were selected based on the strength of evidence for their clinical effectiveness. Available data suggests that there are no differences among available ACEIs and ARBs in their effects on symptoms or survival.
- This measure is intended to encourage ACEI or ARB therapy in the treatment of patients with HF and LVSD. The specific type of ACEI or ARB prescribed is at the discretion of the clinician and should be specific to the needs of the individual patient.

Steering Committee: Reviewed comments and developer's responses. No change in recommendations.

0083 Heart failure: Beta-blocker therapy for left ventricular systolic dysfunction

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

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

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 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.

**Beta-blocker therapy should include bisoprolol, carvedilol, or 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.

Exclusions:

- Documentation of medical reason(s) for not prescribing beta-blocker therapy
- Documentation of patient reason(s) for not prescribing beta-blocker therapy
- Documentation of system reason(s) for not prescribing beta-blocker therapy

Adjustment/Stratification: No risk adjustment necessary

Level of Analysis: Clinician: Individual Type of Measure: Process

Data Source: Electronic administrative data/claims, Electronic Clinical Data, Paper medical record/flow-sheet, Registry data Retooled eMeasure

Measure Steward: American Medical Association, 515 N State St., Chicago, IL 60654

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-19; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- High impact; heart failure is prevalent and associated with high mortality rates.
- Beta blockers have been shown to reduce mortality, but wide variability still exists.

2. Scientific Acceptability of Measure Properties: C-18; P-0; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- The measure is well-defined and precise.
- Certain beta-blocker drugs, based on the evidence, are specified.
- Reliability was tested on a previous measure that is related.
- The measure is valid and exclusions are identified.
- Disparities in care have not yet been identified.

3. Usability: C-18; P-2; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Information provided by the measure is meaningful.
- Information about harmonization is not provided.
- The measure is already being used successfully

4. Feasibility: C-19; P-1; M-0; N-0

0083 Heart failure: Beta-blocker therapy for left ventricular systolic dysfunction

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale: The data are routinely generated from pharmacy records. Exclusions do not require additional data sources. Reasonable accuracy has been demonstrated, and data collection is feasible.

Does the Measure Meet Criteria for Endorsement?: Y-17; N-0; A-0

Rationale:

- The prescription of beta blockers for heart failure has been shown to improve outcomes.
- Prescription rates do vary.
- The measure is already being used successfully.

If applicable, Conditions/Questions for Developer: Exclusions indicate there may be systemic or organizational reasons for excluding someone. What might the reasons be?

Response: We have to talk about patient reasons for exclusion as well as system reasons. System reasons could be high cost or other reasons related to resources. Patient would be excluded because of valid reasons if why they haven't received a beta blocker is indicated somewhere in the record.

RECOMMENDATION: Recommend for endorsement

Public and Member Comment

Comments included:

- Concerns about broad exclusions.
- Clarification requested regarding the setting and data collection for this measure.

Developer response:

- This is a clinician-level measure for the outpatient setting.
- These measures have been tested and found to be generally feasible in EHR, paper, and claims data sources.

Steering Committee: Reviewed comments and developer's responses. No change to recommendations.

0162 ACEI or ARB for left ventricular systolic dysfunction—heart failure (HF) patients

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percentage of heart failure (HF) patients with left ventricular systolic dysfunction (LVSD) who are prescribed an ACEI or ARB at hospital 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.

Numerator Statement: HF patients who are prescribed an ACEI or ARB at hospital discharge

Denominator Statement: HF patients (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of HF: 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); with chart documentation of a left ventricular ejection fraction (LVEF) < 40% or a narrative description of left ventricular systolic (LVS) function consistent with moderate or severe systolic dysfunction

Exclusions:

- Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code of LVAD or Heart Transplant: 33.6, 37.51, 37.52, 37.53, 37.54, 37.60, 37.62, 37.63, 37.65, 37.66, 37.68)
- <18 years of age
- Patients who have a length of stay greater than 120 days
- Discharged to another hospital
- Expired
- Left against medical advice
- Discharged to home for hospice care
- Discharged to a health care facility for hospice care
- Patients enrolled in clinical trials
- Patients with comfort measures only documented
- Patients with a documented reason for no ACEI and no ARB at discharge

Adjustment/Stratification: No risk adjustment necessary N/A

Level of Analysis: Facility/Agency, Population: National Type of Measure: Process

Data Source: Paper medical record/flow-sheet

Measure Steward: Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Baltimore, MD 21244-1850

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-18; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Multiple large multicenter clinical trials demonstrate importance of use of ACE/ARBs for patients with reduced LV function, with significant impact on long-term outcome.
- National Performance is 94%; lower in Native Americans.

2. Scientific Acceptability of Measure Properties: C-11; P-7; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Patients with a missing LVSD value are excluded.

3. Usability: C-14; P-4; M-1; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

0162 ACEI or ARB for left ventricular systolic dysfunction—heart failure (HF) patients

Rationale:

- Submission form included thorough discussion of harmonization.
- Currently in use/Hospital Compare.

4. Feasibility: C-13; P-5; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- Patients without LVEF documented are excluded—measure 0135 assesses measurement of LVSD and has high current performance.
- Data are easily obtainable.

Does the Measure Meet Criteria for Endorsement?: Y-20; N-0; A-0

Rationale:

- Effective process of care that improves outcomes.
- Strong evidence base.

If applicable, Conditions/Questions for Developer:

RECOMMENDATION: Recommend for endorsement

Public and Member Comment

Comments included:

- It would be helpful if the developer could cite the source of its definition for moderate and severe systolic dysfunction, and to the extent feasible, NQF should work with the Steering Committee and relevant measure developers to ensure that this definition is consistent across measures that include references to moderate and severe systolic dysfunction, to ensure objectivity of these definitions.
- An ARB should be used when available for black patients as ACEI in black patients cause more angioedema
- Question the need for a "system reason for delay" exclusion, as system delays would indicate an issue with quality.

Developer did not respond.

Steering Committee: Developers have been requested to pursue more harmonization.

0358 Congestive heart failure (CHF) mortality rate (IQI 16)

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Perecent of discharges with principal diagnosis code of CHF with in-hospital mortality

Numerator Statement: Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.

Denominator Statement: All discharges, age 18 years and older, with a principal diagnosis code of CHF.

Exclusions:

- missing discharge disposition (DISP=missing)
- transferring to another short-term hospital (DISP=2)
- MDC 14 (pregnancy, childbirth, and puerperium)

Adjustment/Stratification: Risk-adjustment method widely or commercially available. The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age in years (in 5-year age groups), All Patient Refined-Diagnosis Related Group (APR-DRG), and APR-DRG risk-of-mortality subclass. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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, state, and region). The risk-adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Required data elements: Patient gender; age in years at admission; International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) principal and secondary diagnosis codes. A limited license 3M APR-DRG grouper is included with the AHRQ QI Software. Gender, age (5-year age groups), race / ethnicity, primary payer, custom

Level of Analysis: Facility/Agency Type of Measure: Outcome

Data Source: Electronic administrative data/claims

Measure Steward: Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-12; N-7

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Heart failure is common and associated with high mortality rates.
- Committee recommended more recent evidence citations.

2. Scientific Acceptability of Measure Properties: C-1; P-14; M-3; N-1

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Well-defined, valid and reliable.
- Risk-adjustment algorithms are available and scoring and analysis allow for identification of disparities in outcome.
- No data element available that would allow exclusion for DNR.
- Detailed disparities information presented in measure submission. .

3. Usability: C-8; P-7; M-3; N-1

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- The information provided by the measure is useful and meaningful.
- Many states already report the measure.
- If patient is admitted for palliative care, it is not captured as an acute admission.

0358 Congestive heart failure (CHF) mortality rate (IQI 16)

4. Feasibility: C-15; P-5; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- The data are routinely generated.
- Exclusions do not require additional data.

Does the Measure Meet Criteria for Endorsement?: Y-13; N-7; A-0

Rationale:

- The measure has a long history of use since 2001.
- The outcome is important.
- The measure is meaningful, reliable, and valid.
- It can be calculated electronically.
- Disparities information presented.

If applicable, Conditions/Questions for Developer: The developer was asked to update the evidence information in the submission.

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

- Support maintaining endorsement as a critical outcome measure for this area of care.
- Difficult to determine to what extent the measure reflects quality of care vs. the population served. Risk adjustment wasn't mentioned and would be essential. Has the potential to discourage centers specializing in the care of patients with advanced heart failure from accepting transfers of patients who are high risk.

Steering Committee: This is an important outcome measure. The measure is risk-adjusted. The measure submission form has the details.

0229 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following heart failure (HF) hospitalization for patients 18 and older

For More Information: Complete Measure Submission;

The following measure information represents a revised measure for all ages submitted during the review of the original measure for ages 65 years and older.

Description: The measure estimates a hospital-level risk-standardized mortality rate (RSMR), defined as death from any cause within 30 days after the index admission date, for patients 18 and older discharged from the hospital with a principal diagnosis of HF.

Numerator Statement: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome.

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 HF.

Denominator Statement: Note: This outcome measure does not have a traditional numerator and denominator like a core process measure; thus, we are using this field to define the patient cohort and to define exclusions to the patient cohort.

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. While the measure can be applied to populations aged 18 years or older, nationally data are often only available for patients aged 65 years or older. We have explicitly tested the measure in both age groups.

The cohort includes admissions for patients discharged from the hospital with a principal diagnosis of HF (ICD-9-CM codes 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, and 428.xx) and with a complete claims history for the 12 months prior to admission. Patients who are transferred from one acute care facility to another must have a principal discharge diagnosis of HF at both hospitals. The initial hospital for a transferred patient is designated as the responsible institution for the episode.

If a patient has more than one HF admission in a year, one hospitalization is randomly selected for inclusion in the measure.

Exclusions: For all cohorts, the measure excludes admissions for patients:

• who were discharged on the day of admission or the following day and did not die or get transferred (because it is less likely they had a significant HF diagnosis);

• who were transferred from another acute care hospital (because the death is attributed to the hospital where the patient was initially admitted);

• with inconsistent or unknown mortality status or other unreliable data (e.g. date of death precedes admission date);

• who were discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge);

• that were not the first hospitalization in the 30 days prior to a patient's death. We use this criteria to prevent attribution of a death to two admissions.

For Medicare FFS patients, the measure additionally excludes admissions for patients:

• enrolled in the Medicare Hospice program any time in the 12 months prior to the index hospitalization including the first day of the index admission (since it is likely these patients are continuing to seek comfort measures only). Although this exclusion currently applies to Medicare FFS patients, it could be expanded to include all payer data if an acceptable method for identifying hospice patients outside of Medicare becomes available.

Adjustment/Stratification: Risk-adjustment devised specifically for this measure/condition. Our approach to risk adjustment was 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 (a form of hierarchical generalized linear model [HGLM]) to create a hospital-level 30-day RSMR. This approach to modeling appropriately accounts for the structure of the data (patients clustered within hospitals), the underlying risk due to patients' comorbidities, and sample size at a given hospital when estimating hospital mortality rates. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand and Shahian et al. 2007). At the

patient level, each model adjusts the log-odds of mortality within 30-days of admission for age, sex, selected clinical covariates and a hospital-specific intercept. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept, or hospital-specific effect, represents the hospital contribution to the risk of mortality, after accounting for patient risk and sample size, and can be inferred as a measure of quality. The hospital-specific intercepts are given a distribution in order 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.

Candidate and Final Risk-adjustment Variables: The measure was developed using Medicare FFS claims data. Candidate variables were patient-level risk-adjustors that are expected to be predictive of mortality, based on empirical analysis, prior literature, and clinical judgment, including demographic factors (age, sex) and indicators of comorbidity and disease severity. For each patient, covariates were obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusted for case differences based on the clinical status of the patient 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. We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission. In addition, only comorbidities that conveyed information about the patient at that time or in the 12-months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment.

The final set of risk-adjustment variables is:

Demographic

- Age-65 (years above 65, continuous) for 65 and over cohorts; or Age (years, continuous) for 18 and over cohorts
- Male

Cardiovascular

- History of PTCA
- History of CABG
- Congestive heart failure
- Acute myocardial infarction
- Unstable angina
- Chronic atherosclerosis
- Cardio-respiratory failure and shock
- Valvular and rheumatic heart disease

Comorbidity

- Hypertension
- Stroke
- Renal failure
- Pneumonia
- Diabetes and DM complications
- Protein-calorie malnutrition
- Dementia and senility
- Hemiplegia, paraplegia, paralysis, functional disability
- Peripheral vascular disease
- Metastatic cancer, acute leukemia, and other severe cancers
- Trauma in last year
- Major psych disorders
- Chronic liver disease

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

0229 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following heart failure (HF) hospitalization for patients 18 and older

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.
Level of Analysis: Facility/Agency Type of Measure: Outcome
Data Source: Administrative claims, Other
Two data sources were used to create the measure:
1. Medicare Part A Inpatient and Outpatient and Part B outpatient claims: This database 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, and hospice care, as well as inpatient and outpatient 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 dataset 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 vital status (Fleming Fisher et al. 1992).
The measure was originally developed with claims data from a 1998 sample of 222,424 cases from 5,087 hospitals. The models have been maintained and re-evaluated each year since public reporting of the measures began in 2007. For details, see measure methodology and measure maintenance reports posted at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1219069855841
The measure was subsequently applied to California Patient Discharge Data, a large, linked all-payer database of patient hospital admissions. Records are linked by a unique patient identification number, allowing us to determine patient history from previous hospitalizations. In addition, the unique patient ID number is used to link with state vital statistics records to assess 30-day mortality.
To apply the measure to Medicare data, Medicare Part A inpatient and outpatient and Part B outpatient claims are used. To apply the measure to a non-Medicare population, inpatient claims data are used.
Fleming C., Fisher ES, Chang CH, Bubolz D, Malenda J. 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.
Measure Steward: Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-02-01, Baltimore, MD 21244-9045

STEERING COMMMITTEE EVALUATION

1. Importance to Measure and Report: Y-19; N-0; revised measure Y-12; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Most common admission under Medicare; second most costly total bill.
- Outcome measure.
- Important outcome measure

Revised measure:

- Including all patients raises Importance criteria further.

2. Scientific Acceptability of Measure Properties: C-19; P-1; M-0; N-0; revised measure C-12; P-0; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Data were published in a manuscript last year, looking at long-term trends in cardiovascular quality and outcomes.
- Risk adjustment used is administrative data. Methodology was validated against clinical data.
- Limited to patient 65 years and older.

Revised measure:

- Comprehensive testing analysis.

0229 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following heart failure (HF) hospitalization for patients 18 and older

- Model fit is extremely good – c statistic is >0.7 for both populations.
- Committee members were impressed that testing demonstrates that there is no need to change the risk variables.
- Used linked vital statistics data from California for testing – is this available in all states?
- The developers report that data from the National Death index and administrative data are similarly delayed.
- Disparities – developers found that hospitals with large African-American populations have similar distributions of performance
- End-of-life concerns – measure includes exclusions for hospice prior to discharge
- Measure accounts for risk factors indicating frailty.

3. Usability: C-17; P-2; M-0; N-0; revised measure C-11; P-1; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Measure is currently in use.
- Public may not view data on website as often as was hoped, but doctors and administrators are using the data for internal quality improvement.

Revised measure:

- More patients captured in the measure.

4. Feasibility: C-19; P-1; M-0; N-0; revised measure C-9; P-3; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- Measure is in use and publicly reported.
- Uses administrative data.

Revised measure:

- Testing demonstrates all payer data can be used.

Does the Measure Meet Criteria for Endorsement?: Y-17; N-1; A-0; revised measure Y-12; No-0

Rationale:

- A detailed, comprehensive submission form demonstrates that the measure meets all the criteria.
- Published in the literature.
- In use and publicly reported.

Revised measure:

- Revised measure captures all patients with good risk model fit.

If applicable, Conditions/Questions for Developer: Disparities in race and socioeconomic status have been reported at the patient level. Does CMS plan on stratifying the measure?

Response: Disparities at the hospital level haven't been seen in facilities with higher percentages of African-American patients.

RECOMMENDATION: MAINTAIN ENDORSEMENT of REVISED MEASURE for all ages

On June 3, 2011, NQF and the Steering Committee were advised that the developer will complete testing of this measure on all payer data. The Committee will evaluate possible revisions to the measure as an addendum.

COMMENTS on original measure

- Given the advanced age of many HF patients, many in palliative care programs, many deaths cannot be considered a result of substandard care.

0229 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following heart failure (HF) hospitalization for patients 18 and older

Committee response:

- Patients in hospice care are excluded and risk factors account for frailty.

COMMENTS on revised measure:

- Clarify the data sources that were used in the all payer data testing.

Developer Response:

The data source used to complete the all payer testing was the state of California's Patient Discharge Database (PDD) which contains records for all discharges from all non-Federal hospitals located in California. California is a diverse state, and, with more than 37 million residents, California represents 12% of the US population. In 2006, there were approximately 3 million adult discharges from more than 450 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. Specifically, patients from this database are linked to the California Death Statistical Master File (DSMF) using social security number in order to validate and record deaths.

The Steering Committee agreed that the developer answered the comment.

0330 Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization for patients 18 and older

For More Information: Complete Measure Submission;

The following measure information represents a revised measure for all ages submitted during the review of the original measure for ages 65 years and older.

Description: The measure estimates a hospital 30-day risk-standardized readmission rate (RSRR), defined as readmission for any cause within 30 days after the date of discharge of the index admission for patients 18 and older discharged from the hospital with a principal diagnosis of heart failure (HF).

Numerator Statement: This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome.

The outcome for this measure is 30 day all-cause readmission. We define this as readmission for any cause within 30 days from the date of discharge of the index HF admission for paients 18 and older.

In addition, if a patient has one or more admissions within 30 days of discharge from the index admission, only one was counted as a readmission.

Denominator Statement: Note: This outcome measure does not have a traditional numerator and denominator like a core process measure; thus, we are using this field to define the patient cohort and to define the patient cohort.

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. While the measure can be applied to populations aged 18 years or older, nationally data are often only available for patients aged 65 years or older. We have explicitly tested the measure in both age groups.

The cohort includes admissions for patients discharged from the hospital with a principal diagnosis of HF (ICD-9-CM codes 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, and 428.xx) and with a complete claims history for the 12 months prior to admission.

Exclusions: For all cohorts, the measure excludes admissions for patients:

- with an in-hospital death (because they are not eligible for readmission);
- without at least 30 days post-discharge enrollment in Medicare FFS (because the 30-day readmission outcome cannot be assessed in this group);
- transferred to another acute care facility (When a patient is transferred from one acute care hospital to another, these multiple contiguous hospitalizations are considered one episode of care. Readmissions for transferred patients are attributed to the hospital that ultimately discharges the patient to a non-acute care setting.);
- discharged against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge);
- admitted with HF within 30 days of discharge from an index admission (Admissions within 30 days of discharge of an index admission will be considered readmissions. No admission is counted as a readmission and an index admission. The next eligible admission after the 30-day time period following an index admission will be considered another index admission.)

Adjustment/Stratification: Risk-adjustment devised specifically for this measure/condition. Our approach to risk adjustment was 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 (a form of hierarchical generalized linear model [HGLM]) to create a hospital level 30-day RSRR. This approach to modeling appropriately accounts for the structure of the data (patients clustered within hospitals), the underlying risk due to patients' comorbidities, and sample size at a given hospital when estimating hospital readmission rates. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand and Shahian et al. 2007). At the patient level, each model adjusts the log-odds of readmission within 30-days of admission for age, sex, selected clinical

covariates and a hospital-specific intercept. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept, or hospital specific effect, represents the hospital contribution to the risk of readmission, after accounting for patient risk and sample size, and can be inferred as a measure of quality. The hospital-specific intercepts are given a distribution in order 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.

Candidate and Final Risk-adjustment Variables: The measure was developed using Medicare FFS claims data. Candidate variables were patient-level risk-adjustors that are expected to be predictive of readmission, based on empirical analysis, prior literature, and clinical judgment, including demographic factors (age, sex) and indicators of comorbidity and disease severity. For each patient, covariates were obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusted for case differences based on the clinical status of the patient 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. In addition, only comorbidities that conveyed information about the patient at that time or in the 12-months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment. We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission,

The final set of risk-adjustment variables is:

Demographic

- Age-65 (years above 65, continuous) for 65 and over cohorts; or Age (years, continuous) for 18 and over cohorts.
- Male

Cardiovascular

- History of CABG
- Cardio-respiratory failure or shock
- Congestive heart failure
- Acute coronary syndrome
- Coronary atherosclerosis or angina
- Valvular or rheumatic heart disease
- Specified arrhythmias
- Other or unspecified heart disease
- Vascular or circulatory disease

Comorbidity

- Metastatic cancer or acute leukemia
- Cancer
- Diabetes or DM complications
- Protein-calorie malnutrition
- Disorders of fluid, electrolyte, acid-base
- Liver or biliary disease
- Peptic ulcer, hemorrhage, other specified gastrointestinal disorders
- Other gastrointestinal disorders
- Severe hematological disorders
- Iron deficiency or other anemias and blood disease
- Dementia or other specified brain disorders
- Drug/alcohol abuse/dependence/psychosis
- Major psychiatric disorders
- Depression
- Other psychiatric disorders
- Hemiplegia, paraplegia, paralysis, functional disability
- Stroke

0330 Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization for patients 18 and older

• Chronic obstructive pulmonary disease
• Fibrosis of lung or other chronic lung disorders
• Asthma
• Pneumonia
• End stage renal disease or dialysis
• Renal failure
• Nephritis
• Other urinary tract disorders
• Decubitus ulcer or chronic skin ulcer

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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.

Level of Analysis: Facility/Agency Type of Measure: Outcome

Data Source: Adminsitrative claims, Other. Two data sources were used to create the measure:

1. Medicare Part A Inpatient and Outpatient and Part B outpatient claims: This database 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, and hospice care, as well as inpatient and outpatient 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 dataset 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 vital status (Fleming Fisher et al. 1992).

The measure was originally developed with claims data from a 2004 sample of 283,919 cases from 4,669 hospitals. The models have been maintained and re-evaluated each year since public reporting of the measures began in 2009. For details, see measure methodology and measure maintenance reports posted at www.qualitynet.org.

The measure was subsequently applied to California Patient Discharge Data, a large, linked all-payer database of patient hospital admissions. Records are linked by a unique patient identification number, allowing us to determine patient history from previous hospitalizations as well as risk of readmission within 30 days.

To apply the measure to Medicare data, Medicare Part A inpatient and outpatient and Part B outpatient claims are used. To apply the measure to a non-Medicare population, inpatient claims data are used.

Fleming C., Fisher ES, Chang CH, Bubolz D, Malenda J. 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.

Measure Steward: Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-02-01, Baltimore, MD 21244-9045

STEERING COMMMITTEE EVALUATION

1. Importance to Measure and Report: Y-19; N-0 revised measure Y-12; No-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Heart failure is the number one cause of hospitalization and readmission among Medicare members.

Revised measure:

- Broader population to include all ages raises Importance further.

2. Scientific Acceptability of Measure Properties: C-18; P-1; M-0; N-0; revised measure C-12; P-0; M-0; N-0

0330 Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization for patients 18 and older

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Very well specified.
- Disparities information should be publicly disclosed on Hospital Compare.
- Stratified analyses are done instead of controlling for socioeconomic status.

Revised measure:

- Risk model fit is lower –c-statistic = 0.61 - typical of all readmission measures.

3. Usability: C-18; P-1; M-0; N-0; revised measure C-11; P-1; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Has been in use without any major issues for some time.
- Captures an important domain of quality that's not captured in the mortality measure or other measures reviewed.

Revised measure:

- Revised measure captured all patients.

4. Feasibility: C-18; P-1; M-0; N-0; revised measure C-11; P-1; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- Data generated during care process. Uses administrative data.
- Data could be obtained from electronic health records or paper.
- Isn't particularly susceptible to inaccuracies and is easily implemented.

Does the Measure Meet Criteria for Endorsement?: Y-20; N-0; A-0; revised measure Y-12; N-0

Rationale:

- High readmission rates—20% within 30 days; 50% within 1 years
- Significant variation
- Addresses all criteria

Revised measure:

- Broader measure addresses stakeholder's request for improved measure.

If applicable, Conditions/Questions for Developer: Strongly recommend that disparities data be reported on Hospital Compare.

Developer Response: Disparities surveillance is on-going and reported on another CMS website. Will consider recommendation to include in Hospital Compare.

RECOMMENDATION: MAINTAIN ENDORSEMENT of REVISED MEASURE for all ages

On June 3, 2011, NQF and the Steering Committee were advised that the developer will complete testing of this measure on all payer data. The Committee will evaluate possible revisions to the measure as an addendum.

Public and Member comment

COMMENTS on the original measure

Several comments were submitted suggesting that the measure does not meet the NQF measure evaluation criteria for endorsement:

- Exclusions. We urge the Steering Committee to request an analysis from the measure developer on a list of risk-adjustment variables (Appendix A) that should be considered as candidates for measure exclusions. We

recommend the Steering Committee re-examine this measure for scientific acceptability. We are concerned that the criteria included in section 2d: exclusions justified of the Consensus Development Process has not been properly met. Currently, this measure only includes exclusions in five-limited categories: In-hospital death; Without at least 30 days post-discharge enrollment in fee-for-service Medicare; Transferred to another acute care facility; Discharged against medical advice; Admitted with heart failure within 30 days of discharge from an index admission."

- The measure developer has included a list of risk-adjustment variables (Appendix A) that are applied to claims data. However, these variables are not being applied to ensure that cases that are not truly readmissions are left out of the measures rate. Rather than use these variables in the risk-adjustment methodology, these variables should be considered candidates for additional exclusions. We urge the Steering Committee to ask the developer to provide evidence that these variables are not distorting the measure results. The developer should provide the following: Count of the frequency of these variables; Sensitivity analysis with and without the exclusions; and Variability of exclusions across hospital types (i.e., teaching and non-teaching).

Developer response:

The first is a request to consider using current risk-adjustment variables (those listed in their Appendix A) instead as exclusions to the measure. We feel the measure is a much stronger measure as designed because it includes a greater proportion of a hospitals' heart failure (or AMI) patients while adequately risk-adjusting for differences in hospitals' case-mix. The goal in developing outcomes measures is to create a clinically cohesive cohort that includes as many patients as possible admitted with the given condition (e.g., heart failure). We aim to limit exclusions to factors that preclude fair assessment of care quality for an admission, such as lack of continuous enrollment, which prevents us from assessing patient risk factors, or patients' leaving AMA, since hospitals do not have the opportunity to provide all recommend care for these patients. Greatly expanding our list of exclusions to all the conditions listed in the Appendix would result in a measure that was less useful and meaningful, as it would reflect the care of the small number of a hospital's patients that presented without significant co-morbidities. It also could create incentives for hospitals to code risk-factors in order to exclude patients from the measures. To fairly profile hospitals' performance risk adjustment, it is critical to place hospitals on a level playing field and account for their differences in the patients that present for care. This is accomplished through adequate risk adjustment for patients' clinical presentation rather than exclusion of patients.

The second issue raised by the commenter above is the "exclusion" of planned cases and unrelated admissions. In this case the comment is referring to "excluding" readmissions that is, not counting certain admission as readmissions (as opposed to excluding hospitalizations from the cohort assessed for readmissions). The readmission measures are designed as all-cause readmission measures for a number of reasons.

First, from the patient perspective, unplanned readmission for any reason is an undesirable outcome of care, even though not all readmissions are related to the index admission or preventable. Second, limiting the outcome to "related readmissions" may limit the focus of efforts to improve care to a narrow set of approaches as opposed to encouraging broader initiatives aimed overall at improving the care within the hospital and transitions from the hospital setting. Moreover, there is no reliable way to exclude quality issues and accountability based on the documented cause of readmission. For example, a patient admitted for heart failure who develops a line infection may ultimately be readmitted for sepsis. It would be inappropriate to treat this readmission as unrelated to the care the patient received during the initial hospitalization. The goal of an all-cause readmission measure is not to reduce readmissions to zero, but to assess hospital performance relative to what is expected given the performance of other hospitals with similar case mixes while minimizing the potential for systematic coding misclassifications (gaming).

We do however aim, in the development of readmission measures to identify planned readmissions. Planned readmissions are admissions that include a planned procedure as follow-on care from the index hospitalization. At the time of measure development, clinical experts were asked whether there were common follow-up causes of readmissions for a scheduled

procedure that represented a continuation of care after a HF admission. No such related, planned procedures were identified as occurring commonly after the index admissions for HF.

- Risk adjustment. We urge the Steering Committee to have additional dialogue with the measure developer on the use of stratification to properly risk adjust the HF readmission measure. We recommend the Steering Committee re-examine this measure for scientific acceptability. We are concerned that the criteria included in section 2e: risk adjustment/stratification of the Consensus Development Process has not properly been met. The NQF criteria in the maintenance report states, "It is preferable to stratify measures by race and socioeconomic status rather than adjusting out differences." However, the measure developer states, "The measure is not stratified."
  At a minimum this data must be made publicly available in order for this measure to pass the test of scientific acceptability and remain endorsed under this maintenance review.

- Disparities. We urge the Steering Committee to have additional dialogue with the measure developer on stratification to properly account for the disparities underlying the HF readmission measure. We recommend the Steering Committee re-examine this measure for scientific acceptability. We are concerned that the criteria included in section 2h: disparities of the Consensus Development Process has not been properly met. The NQF criteria in the maintenance report states, "If disparities in care have been identified, measure specifications, scoring and analysis allow for identification of disparities through stratification of results (e.g., by race, ethnicity, socioeconomic status, gender); or rationale/data justifies why stratification is not necessary or not feasible." However, the measure developer states: "Disparities in race and socio-economic status have been reported at the patient level [for the heart failure readmission measure].

Developer response:

Performance on the measure nationally confirms that the measure is fair to hospitals with relatively high proportions of minority and low SES patients. Examination of the current publicly-reported readmission measures demonstrates that hospitals serving high proportions of African-American patients or patients of low SES often perform well on the measures. We have grouped hospitals according to the proportion of their patients who are African-American or the median income level of their patients and compared the performance of these groups on the readmission measures based on discharges for 2007-2009. We have also compared the performance of safety-net and non-safety-net hospitals. In each of these analyses, the primary finding is that the range of performance for hospitals in the group serving the highest proportion of African-American or poorer patients overlaps almost completely with the performance of hospitals with lower percentages of vulnerable populations. In all subgroups of hospitals we find both high and low performers. These analyses support a standard benchmark for hospitals regardless of the racial or SES mix of the patients they serve. Furthermore, stratifying patients in these measures by race and/or socioeconomic status would set a double standard for quality measurement. Therefore, we have neither risk adjusted for race and/or socioeconomic status in order to ensure any disparities present are not masked and we have not stratified the measure to prevent the creation of a double standard of quality performance based upon race and/or socioeconomic status.

- I have real concerns about readmission rates as quality measures. One reason is our data from the VA system showed over a 5-year period in patients who were hospitalized for heart failure that there was a progressive rise in readmission rates associated with a progressive decline in mortality rates. (Heidenreich JACC 2010;56:362-68). A likely reason for this may be that systems which have programs in place to see patients early post-discharge and/or employ various forms of remote monitoring, home visits, and contact with trained NPs will recognize clinical deterioration earlier and admit the patient. This measure has the potential to discourage timely readmissions.

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Developer response:

As noted, a readmission measure could provide an incentive to deny a patient a needed admission, thereby reducing access for patients and ultimately resulting in worse outcomes. The Centers for Medicare and Medicaid Services (CMS) publicly reports both mortality and all-cause readmission measures for AMI, heart failure, and pneumonia, mitigating concerns that hospital actions that affect both readmission and mortality will not be fully captured in performance assessment. Importantly, many hospitals perform well on both the readmission and mortality measures demonstrating that good performance on the mortality measure does not limit performance on the readmission measures. In addition, CMS monitors and maintains their publicly reported measures on an ongoing basis.

Furthermore, readmission has several important strengths as an outcome for evaluating hospital quality of care: 1) It is patient-centered in that patients experience the outcome and incur the disruption, risk, and indirect (and sometimes the direct) costs of the hospitalization and the clinical events that led to it; 2) As an outcome, readmission incorporates many aspects of a patient's care, including actions that are difficult to measure directly. Successful transition from the hospital and an uneventful recovery requires that many aspects of healthcare are successfully delivered; 3) although not all readmissions are preventable, many readmissions could be prevented if care were improved. Research has shown that readmission rates are influenced by the quality of inpatient and outpatient care, and that improvement in care, such as improved discharge processes, can reduce readmission rates; 4) Readmissions are costly and a reduction in these events would not only enhance the patient experience but could also reduce health care spending.

- All cause readmission loses its meaning to clinicians and providers as this does not provide information that could lead to performance improvement.

Committee response: The Committee accepted the developer responses that "adequately addressed the issues in a detailed fashion".

COMMENTS on the revised measure:

- The Centers for Medicare and Medicaid Services (CMS) has finalized this HF readmission measure for application in the readmission penalty program. Rather than using the Hospital Compare methodology for determining HF readmission performance, the readmission penalty program will be using a point estimate of an individual hospital's performance using an observed to expected methodology. A component of this methodology will consider the national average for HF readmissions. The literature has very clearly documented that African-Americans have a statistically higher level of readmissions that all other race/ethnicities. This is why we have been asking for proper stratification of the HF readmission measure.

Developer Response

We agree that the use of the point estimate in the Readmission Reduction Program will result in different profiles for hospitals than the approach originally used for public reporting of these measures (i.e. performance categorized as better, worse or no different than national rate). We also agree that unadjusted rates of readmission for African-American patients are higher than those for Caucasian patients. However, neither of these issues are a compelling reason to stratify the measures. Our fundamental contention is that there is no inherent clinical reason that African-American patients should have higher readmission rates once the measures account for differences in clinical status, and that many hospitals perform well on the measure despite caring for a high proportion of African-American patients.

Steering Committee response:

The Steering Committee carefully reviewed the comments and the measure developer response. Committee members

generally agreed that the comments raised interesting questions but did not change their recommendation for the measure. Several members support stratification of an individual hospital's data for race/ethnicity to assist their understanding of their performance. Specifically members noted:

- General agreement with the measure developer's response. Racial disparities should not be "adjusted out" before the data are seen or published.
- There is no reason to believe that there is some unidentified reason that African Americans should have higher readmit rates.
- The risk-adjustment that already exists in the measure, as written, should account for the greater disease burden among African-Americans.
- Stratifying by race/ethnicity may be useful in understanding an individual hospital's overall HF readmission rate. However, measuring all hospitals' HF readmission rate by the same method, regardless of their patients' racial/ethnic mix would hold all hospitals to the same standard (and risk of penalty), regardless of the racial/ethnic composition of their patient population. In addition, it would uncover any racial/ethnic disparities that need to be addressed and eliminated.
- Race/ethnicity data are not as solid as we'd like, but favor stratification even with its limitations because without paying attention to this element we won't deal with disparities.
- Income status or education level may be better stratifiers than race based on the 2010 AHRQ Disparities report. Differential access to care can significantly affect readmission rates and this would be more cross-cutting than simply stratifying by race/ethnicity. Having a usual source of care and health insurance status are more significantly related to poverty and educational status per AHRQ. Possibly poverty would be a more logical stratifier for HF readmissions. Poverty is related to presence of health insurance and access to care, and related to having a usual source of care; both important factors in HF readmissions.

While the Committee has made disparities a high priority throughout this project and supports reporting of data on disparities, Committee members did not support stratification for the purpose of adjusting the payment based on the racial/ethnic mix of a hospital's patient population.

0277 Congestive heart failure admission rate (PQI 8)

Maintenance review

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percent of county population with an admissions for CHF

Numerator Statement: All discharges of age 18 years and older with ICD-9-CM principal diagnosis code for CHF

Denominator Statement: Population in Metro Area or county, age 18 years and older

Exclusions: None

Adjustment/Stratification: Risk-adjustment method widely or commercially available. The predicted value for each case is computed using a logistic regression model and covariates for gender and age in years (in 5-year age groups). The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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., county, state, and region). The risk-adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Observed rates may be stratified by gender, age (5-year age groups), race/ethnicity.

Level of Analysis: Population: Counties or cities Type of Measure: Outcome

Data Source: Electronic administrative data/claims

Measure Steward: Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-15; N-5

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Performance gaps by age, gender, and income.
- No benchmark for the indicator.
- Some concern that use of the measure may create perverse incentives to improve performance by reducing admissions without improving quality of care.
- Some concern about interpretation of "preventable".
- An "ambulatory care sensitive measure".

2. Scientific Acceptability of Measure Properties: C-5; P-15; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale:

- Precisely defined.
- Very strong disparities
- Risk adjusted by age and gender only.
- Committee would like to see stratification for race/disparities
- Does not include emergency department (ED) admission, only hospital admission.

3. Usability: C-2; P-18; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Committee would like to see stratification for race.
- Developer notes that county and state health departments have used this as a tool to allocate resources toward primary care workforce development in communities that are felt to have a disproportionate burden of avoidable hospitalizations.

4. Feasibility: C-9; P-11; M-0; N-0

0277 Congestive heart failure admission rate (PQI 8)
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented) Rationale: • Does not include ED admissions data; only hospital admission data.
Does the Measure Meet Criteria for Endorsement?: Y-19; N-1 Rationale: • Population health measures in use for more than 10 years. • Gaps by age, gender, and income.
If applicable, Conditions/Questions for Developer:
RECOMMENDATION: Recommend for endorsement
Public and Member Comment Comments included: • Unclear how valid it would be as a measure of performance of practitioners or even hospitals. Can potentially be used as a measure of availability of health care services and population health. • Potential for an unintended consequence of the increased burden on ED observation units to manage this complex patient population. On the other hand, it will place pressure on hospitals to support outpatient CHF clinics where EDs can send patients for next day follow-up. Steering Committee: The theoretical consequences do not outweigh the benefit.

Measure endorsed and placed in reserve status:

0135 Evaluation of left ventricular systolic function (LVS)
Measure maintenance For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of heart failure (HF) patients with documentation in the hospital record that left ventricular systolic (LVS) function was evaluated before arrival, during hospitalization, or is planned for after discharge. Numerator Statement: HF patients with documentation in the hospital record that LVS function was evaluated before arrival, during hospitalization, or is planned for after discharge Denominator Statement: HF patients (ICD-9-CM principal diagnosis of HF: 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) Exclusions: Exclusions: • <18 years of age • Patients who have a length of stay greater than 120 days • Discharged to another hospital • Expired • Left against medical advice • Discharged to home for hospice care • Discharged to a health care facility for hospice care • Patients enrolled in clinical trials • Patients with comfort measures only documented • Reasons for no LVS function evaluation documented by a physician, advanced practice nurse, or physician assistant • Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code of LVAD or Heart Transplant: 33.6, 37.51, 37.52, 37.53, 37.54, 37.60, 37.62, 37.63, 37.65, 37.66, 37.68) Adjustment/Stratification: No risk adjustment necessary N/A Level of Analysis: Facility/Agency, Population: National Type of Measure: Process Data Source: Paper medical record/flow-sheet Measure Steward: Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Baltimore, MD 21244-1850
STEERING COMMITTEE EVALUATION
1. Importance to Measure and Report: Y-15; N-3 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • Important to document this measurement; impacts long-term outcome and therapy. • Current performance is very high. • Disparities evident among Native American population. • No explicit guideline recommendation as to what an appropriate time interval is.
2. Scientific Acceptability of Measure Properties: C-7; P-6; M-5; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: • Concern with misinterpretation of measure so that testing is done at every hospitalization which is not required by the measure. • Data abstraction may be difficult. Documentation challenge if test wasn't done during that hospitalization period.
3. Usability: C-5; P-10; M-4; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to*

0135 Evaluation of left ventricular systolic function (LVS)

existing measures)

Rationale:

- May stimulate overuse of imaging because of misinterpretation of measures inclusions—test done before or after hospitalization is credited

4. Feasibility: C-5; P-8; M-6; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- Unintended consequence may be to encourage overuse.
- Upcoding issues with heart failure diagnosis.
- Implemenation issues—difficult to find data in charts.

Does the Measure Meet Criteria for Endorsement?: Y-5; N-13; A-0

Rationale:

- Current high performance. Possibly candidate for "topped out" category.
- Concern that this measure is a starting point for therapy, and if eliminated could impact other measures.
- A composite format may better serve this measure.

If applicable, Conditions/Questions for Developer:

RECOMMENDATION: MAINTAIN ENDORSEMENT AND PLACEMENT IN RESERVE STATUS

Additional recommendation: The Steering Committee also recommended that the measure be recalculated again in 3-5 years to monitor performance.

Public and Member Comment

Comments included:

- This low-bar, low-impact measure, merely captures evaluation of a function and does not include delivery of good care or obtaining a good result. This is a good place to reduce the burden of collection and reporting.
- Concerns about difficulties with data abstraction.
- The measure should be monitored to ensure that unintended consequences do not result such as encouraging overuse of certain services or testing.

Steering Committee: These issues were discussed during original evaluation of the measure. No change in recommendations.

Not recommended:

0077 Heart failure: Symptom and activity assessment
Maintenance measure For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of patient visits for those patients aged 18 years and older with a diagnosis of heart failure with quantitative results of an evaluation of both current level of activity and clinical symptoms documented Numerator Statement: Patient visits with quantitative results of an evaluation of both current level of activity and clinical symptoms documented* *Evaluation and quantitative results documented should include: • documentation of New York Heart Association (NYHA) Class OR • documentation of completion of a valid, reliable, disease-specific instrument (e.g., Kansas City Cardiomyopathy Questionnaire, Minnesota Living with Heart Failure Questionnaire, Chronic Heart Failure Questionnaire) Denominator Statement: All patient visits for those patients aged 18 years and older with a diagnosis of heart failure Exclusions: Documentation of medical reason(s) for not evaluating both current level of activity and clinical symptoms (eg, severe cognitive or functional impairment) Adjustment/Stratification: No risk adjustment necessary Level of Analysis: Clinician: Individual Type of Measure: Process Data Source: Electronic administrative data/claims, Electronic Clinical Data, Paper medical record/flow-sheet, Registry data Measure Steward: American Medical Association, 515 N State St., Chicago, IL 60654
STEERING COMMITTEE EVALUATION
1. Importance to Measure and Report: Y-8; N-10 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • Process measure based on a clinical guideline recommendation supported by Level C evidence (expert consensus). • There is evidence to suggest that the variability in provider determination of NYHA class is considerable. • Use of psychometrically standardized questionnaires is more defensible; however, there is no evidence of a link between performing and assessment and outcome.. • Unclear if there is a gap in documentation or a gap in clinically asking or assessing..
Steering Committee Recommendation for Endorsement: Not recommended. Rationale: Does not meet the criterion for importance to measure. • What is the evidence of realtionship to outcomes? • Gap is likely a gap in documentation.
The developers submitted a letter to the Steering Committee disagreeing with the Committee's evaluation and requested a reconsideration of the measure evaluation citing the following: • "a notable gap in patient-centric measures that would focus attention on patient-reported outcomes, including their symptoms, function and health-related quality of life"; and • symptoms are an outcome and there are racial disparities in symptom management; they want to lay a foundation for future measures of efficacy and appropriateness. The Steering Committee agreed that the measure, as specified, is a process measure that is not linked to an intermediate or ultimate outcome and additionally noted: • Evidence is lacking. What is the data/evidence that just doing an assessment is related to patient satisfaction, better outcomes, more or less angioplasty, or less MIs? • What is the gap? General perception that clinicians are not doing this well. PINNACLE data = 85.5%. Steering Committee re-vote on Importance: Y– 6, N-9

0077 Heart failure: Symptom and activity assessment
RECOMMENDATION: Not recommended
Public and Member Comment Comments included: • A letter requested reconsideration of four measures: Coronary Artery Disease and Heart Failure: Symptom and Activity Assessment Measures (NQF #'s 0065, 0077) and Coronary Artery Disease and Hypertension: Blood Pressure Control Measures (NQF #'s1486, 0013). The Steering Committee noted that they have voted on this measure twice before and, in the absence of new information, declined to vote a third time.

962 Composite measure of hospital quality for heart failure (HF)

New measure

For More Information: Complete Measure Submission; Meeting/Call Proceedings

Description: A composite measure of in-hospital process- and outcome-of-care for Heart Failure (HF) patients.

Composite Numerator Statement: For the process-of-care domain, the numerator is equal to the weighted sum of four terms. Each term is equal to the ratio of the hospital's raw performance rate to the national performance rate for the indicator. The weight is equal to the total number of observations, that is, the number of patients 'at risk' for the indicator.

For the outcome-of-care domain, the numerator is equal to the weighted sum of two terms. Each term is equal to the ratio of the hospital's risk-standardized performance rate to the national performance rate for the indicator. The weight is equal to the total number of eligible discharges for the indicator.

Denominator Statement: For the process-of-care domain, the denominator is equal to the total number of observations for all HF process indicators. It is thus equal to the number of patients 'at risk' for the four process indicators.

For the outcome-of-care domain, the denominator is equal to the total number of observations for all HF outcome indicators. It is thus equal to the number of eligible discharges for the two outcome indicators.

Exclusions: The following two criteria were applied as exclusion restrictions:

1. Hospitals with less than five eligible patient cases for the process-of-care indicators and less than 25 eligible discharges for the outcome-of-care indicators.
2. Hospitals that were missing rates for one or more process-of-care and/or outcome-of-care indicators.

Adjustment/Stratification:

Level of Analysis: Hospital Type of Measure: Composite

Data Source: The composite is constructed from component measures posted on the Hospital Compare website.

Measure Steward: Centers for Medicare & Medicaid Services

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-8; N-10

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- While a composite is desirable, the components are not the right ones.

Does the Measure Meet Criteria for Endorsement?: Not recommended.

Rationale: Does not meet Importance to Measure and Report criteria:

- Includes smoking measure no longer endorsed by NQF and discharge instructions measure that is not recommended to maintain endorsement.
- Does not address improtant aspects of care for HF: beta blocker use; better discharge measure; cardiac rehab.
- The process of care measures are on all patients; the outcome measures (mortality and readmissions) are Medicare only.
- Weighting should be by impact.

If applicable, Conditions/Questions for Developer: Why not create an all-or-none composite? What about other important aspects of care for HF patients such as beta blocker use, patient education and self management, functional status and symptom control or a valid smoking cessation measure?

Response: They were limited to the measures used on Hospital Compare.

RECOMMENDATION: Not recommended

0136 Heart Failure (HF): Detailed discharge instructions

Description: Percentage of heart failure patients discharged home with written instructions or educational material given to patient or caregiver at discharge or during the hospital stay addressing all of the following: activity level, diet, discharge medications, follow-up appointment, weight monitoring, and what to do if symptoms worsen.

Numerator Statement: HF patients with documentation that they or their caregivers were given written discharge instructions or other educational material addressing all of the following:

1. activity level
2. diet
3. discharge medications
4. follow-up appointment
5. weight monitoring
6. what to do if symptoms worsen

Denominator Statement: HF patients discharged home (ICD-9-CM principal diagnosis of HF: 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); and a discharge to home, home care, or court/law enforcement

Exclusions: Exclusions:

- <18 years of age
- Patients who have a length of stay greater than 120 days
- Patients enrolled in clinical trials
- Patients with comfort measures only documented
- Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code of LVAD and Heart Transplant: 33.6, 37.51, 37.52, 37.53, 37.54, 37.60, 37.62, 37.63, 37.65, 37.66, 37.68)

Adjustment/Stratification: No risk adjustment necessary N/A

Level of Analysis: Facility/Agency, Population : National

Type of Measure: Process

Data Source: Paper medical record/flow-sheet

Measure Steward: Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Baltimore, MD 21244-1850

HYPERTENSION

Endorsed measure:

0018 Controlling high blood pressure
Maintenance review For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: The percentage of members 18–85 years of age who had a diagnosis of hypertension (HTN) and whose blood pressure (BP) was adequately controlled (<140/90) during the measurement year. Use the Hybrid Method for this measure. Numerator Statement: The number of members in the denominator whose most recent BP is adequately controlled during the measurement year. For a member's BP to be controlled, both the systolic and diastolic BP must be <140/90 (adequate control). To determine if a member's BP is adequately controlled, the organization must identify the representative BP. Denominator Statement: Patients 18-85 with hypertension. A patient is considered hypertensive if there is at least one outpatient encounter with a diagnosis of HTN during the first 6 months of the measurement year. Exclusions: • Exclude from the eligible population all members with evidence of end-stage renal disease (ESRD) (Table CBP-C) on or prior to December 31 of the measurement year. Documentation in the medical record must include a dated note indicating evidence of ESRD. Documentation of dialysis or renal transplant also meets the criteria for evidence of ESRD. • Exclude from the eligible population all members with a diagnosis of pregnancy (Table CBP-C) during the measurement year. • Exclude from the eligible population all members who had an admission to a nonacute inpatient setting any time during the measurement year. Refer to Table FUH-B for codes to identify nonacute care. Adjustment/Stratification: No risk adjustment necessary. Level of Analysis: Clinician, Clinician: Group/Practice, Clinician: Individual, Health Plan Type of Measure: Outcome Data Source: Administrative claims, Electronic administrative data/claims, Electronic Clinical Data, Electronic Clinical Data: Electronic Health Record, Paper medical record/flow-sheet, Paper Records; Retooled eMeasure Measure Steward: National Committee for Quality Assurance, 1100 13th Street NW, Suite 1000, Washington, DC 20005
STEERING COMMITTEE EVALUATION
1. Importance to Measure and Report: Y-20; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • Important intermediate outcome measure. • Strong evidence for relationship to long-term outcomes. • There is less precision in the evidence for BP targets for patients greater than 85 years.
2. Scientific Acceptability of Measure Properties: C-4; P-12; M-3; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: • The level of measurement or analysis should be clinician and health plan. Submission form indicates clinician only. • Intolerance of low BP not included.
3. Usability: C-12; P-6; M-1; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: • Value added is in exclusions specified in this measure.

0018 Controlling high blood pressure

- Measure is essentially the same as the PCPI measure (0013).

4. Feasibility: C-12; P-8; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- Measure has been retooled for EHRs.

Does the Measure Meet Criteria for Endorsement?: Y-19; N-0; A-0

Rationale: Clearer measurement defintion than comparable PCPI measure (0013).

If applicable, Conditions/Questions for Developer:

1. How is timeframe for control defined?
2. How was age 85 chosen?
3. Is white coat hypertension in the exclusions?
4. Why isn't home blood pressure monitoring included?

Developer Response:

1. From onset of diagnosis to the following 12 month period.
2. The age was chosen as a result of multiple comorbidities and functional status issues.
3. No. This is office-based and the last measurement recorded.
4. This measure hasn't been tested to incorporate home monitoring.

Steering Committee Follow-up:

4. As new JNC-8 guidelines are released, the inclusion of home monitoring is recommended, as well as age inclusions.

Developer Follow-up:

4. May consider retesting of the measure.

RECOMMENDATION: MAINTAIN ENDORSEMENT

Public and Member Comment

Comments included:

- Request clarification of age range specified for the measure.
- The measure depends on patient compliance.

Developer response:

- We very much look forward to the release of new guidelines from the JNC-8 and will incorporate these recommendations into our measurement development and maintenance process.

Steering Committee: This is an important outcome measure. The Committee discussed the age range and understands that the forthcoming JNC8 guidelines will address the upper age concerns. Developers have agreed to align measure specifications with the JNC8 guidelines.

Not recommended:

0013 Hypertension: Blood pressure management
Measure maintenance For More Information: Complete Measure Submission; Meeting/Call Proceedings
Endorsed measure 0013 was originally Blood pressure measurement *Percentage of patient visits with blood pressure measurement recorded among all patient visits for patients aged ≥ 18 years with diagnosed hypertension.(Retooled eMeasure)* Endorsed measure 0017 was originally Hypertension plan of care *Percentage of patient visits during which either systolic blood pressure ≥ 140 mm Hg or diastolic blood pressure ≥ 90 mm Hg, with documented plan of care for hypertension. The revised submission replaces both measures.* Description: Percentage of patients aged 18 years and older with a diagnosis of hypertension with a blood pressure <140/90 mm Hg OR patients with a blood pressure ≥ 140/90 mm Hg and prescribed two or more anti-hypertensive medications during the most recent office visit within a 12-month period Numerator Statement: Patients with a blood pressure <140/90 mm Hg OR Patients with a blood pressure ≥ 140/90 mm Hg and prescribed two or more anti-hypertensive medications during the most recent office visit within a 12-month period Instructions: • Report number of patients for 1st numerator component (outcome) AND • Report number of patients for 2nd numerator component (process) AND • Report total number of patients for all numerator components Denominator Statement: All visits for patients aged 18 years and older with a diagnosis of hypertension Exclusions: • Documentation of medical reason(s) for not prescribing two or more anti-hypertensive medications (e.g., allergy, intolerant, postural hypotension) • Documentation of patient reason(s) for not prescribing two or more anti-hypertensive medications (e.g., patient declined) • Documentation of system reason(s) for not prescribing two or more anti-hypertensive medications (e.g., financial reasons) Adjustment/Stratification: No risk adjustment necessary Level of Analysis: Type of Measure: Process Data Source: Electronic administrative data/claims, Electronic Clinical Data, Paper medical record/flow-sheet, Registry data Measure Steward: American Medical Association, 515 N State St., Chicago, IL 60654 This is an updated version of measure 0013 Blood pressure measurement combined with 0017 Plan of care.
STEERING COMMITTEE EVALUATION
1. Importance to Measure and Report: Y-19; N-1 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • This is a new measure combining intermediate outcome and plan of care. • More evidence is needed to support that two or more anti-hypertensive medications is considered a positive outcome without some additional definition of the measure related to the extent of control achieved (e.g., reduction in BP by a certain % from baseline after medications prescribed). • Concern that credit could be given for undertreatment.
2. Scientific Acceptability of Measure Properties: C-3; P-5; M-7; N-5 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)*

0013 Hypertension: Blood pressure management

Rationale:

- No current performance data. Reliability and validity are not known.
- Based on more than one BP measurement.
- BP values from home, office or 24-hour monitoring.
- Unintended consequence for the two medication threshold if patients should be on three.
- Concerns for patients that don't tolerate BP <140/90 versus undertreatment of patients who should be at target.

3. Usability: C-4; P-9; M-6; N-1

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale:

- Title seems misleading because it captures patients who are not under control.

4. Feasibility: C-9; P-6; M-5; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale:

- Data are generated during care; collection easily implemented.

Does the Measure Meet Criteria for Endorsement?: Y-6; N-14; A-0

Rationale:

- Lack of evidence for two or more drugs component.
- Reliablity and validity not known.
- Some patients may need three+ drugs—measure gives credit for patients that may be undertreated.
- New measure—no current performance data.

If applicable, Conditions/Questions for Developer:

1. What is the added value of this measure on top of previous ones?
2. Title seems misleading—it is not just BP control.

Developer Response:

1. Addresses other issues: blood pressure >140/90; includes ambulatory, home, and office monitoring.
2. Developer changed the title to "BP management".

RECOMMENDATION: Not recommended

Public and Member comment

Comments included:

- We support the steering committees decisions to not recommend this measure for endorsement because testing for the measure has not been completed. Also problematic is that the measure combines an outcome and a process measure, and essentially gives physicians a pass for simply having prescribed medications when a patient's blood pressure isn't under control. Additionally, the exclusions are too broad.
- A letter requested reconsideration of four measures: Coronary Artery Disease and Heart Failure: Symptom and Activity Assessment Measures (NQF #'s 0065, 0077) and Coronary Artery Disease and Hypertension: Blood Pressure Control Measures (NQF #'s1486, 0013).

The Steering Committee noted that they have voted on this measure twice before and, in the absence of new information, declined to vote a third time. No reliability and validity testing data was presented, which was required for consideration in this project. The measures do not meet NQF's criteria for scientific acceptability.

0276 Hypertension admission rate (PQI 7)

Maintenance review

For More Information: Complete Measure Submission; Meeting/Call Proceedings

Description: Percentage of county population with an admission for hypertension.

Numerator Statement: All discharges of age 18 years and older with ICD-9-CM principal diagnosis code for hypertension (see below).

Denominator Statement: Population in Metro Area or county, age 18 years and older.

Exclusions: None

Adjustment/Stratification: Risk-adjustment method widely or commercially available. The predicted value for each case is computed using a logistic regression model and covariates for gender and age in years (in 5-year age groups). The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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., county, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Observed rates may be stratified by gender, age (5-year age groups), race / ethnicity.

Level of Analysis: Population: Counties or cities Type of Measure: Outcome

Data Source: Electronic administrative data/claims

Measure Steward: Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850

STEERING COMMITTEE EVALUATION

1. Importance to Measure and Report: Y-7; N-11

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale:

- Submitted documentation states "Little evidence exists regarding the validity of this indicator," and "some of the variance in age-sex adjusted rates does not reflect true differences in area performance."
- Patients with uncontrolled blood pressure are admitted for many reasons (CHF, AMI, stroke). Only hypertension as primary diagnosis is captured.
- Could be missing an important population.

Does the Measure Meet Criteria for Endorsement?: Do not recommend.

Rationale: Did not pass Importance criteria

If applicable, Conditions/Questions for Developer: How is this data better than NHANES or BRFSS?

Response: Intended to describe population health; designed for use at the geographic area level.

RECOMMENDATION: REMOVE ENDORSEMENT

NQF Member and Public Comment

Comments included:

- Re-evaluate – not endorsing the measure could result in loss of important information

Steering Committee: This measure only captures admissions with a primary diagnosis of hypertension. Many admissions for uncontrolled hypertension are for AMI or stroke rather than hypertension and are not captured in this measure. The Committee questions exactly what the measure results tells us.

MEASURES WITHDRAWN FROM CONSIDERATION

The measure developers have indicated that they no longer maintain the following measures and request retirement from NQF's measure portfolio. The Committee agreed that better measures have replaced these in NQF's portfolio.

Title	Description
0072 CAD: beta-blocker treatment after a heart attack (NCQA)	Percentage of patients who have a claim indicating beta blocker therapy or who received an ambulatory prescription for beta-blockers rendered within 7 days after discharge.
0161 AMI inpatient mortality (risk-adjusted) (The Joint Commission)	Percentage of acute myocardial infarction (AMI) patients who expired during hospital stay.
0165 Percutaneous coronary intervention (PCI) volume (ACC)	Percentage of patient admissions for percutaneous coronary intervention (PCI) procedure.
0082 Heart Failure (HF) : Patient education (AMA PCPI)	Percentage of patients who were provided with patient education on disease management and health behavior changes during one or more visit(s).
0084 Heart Failure (HF) : Warfarin therapy patients with atrial fibrillation (AMA PCPI)	Percentage of patients with HF who also have paroxysmal or chronic atrial fibrillation who were prescribed warfarin therapy.
0085 Heart Failure (HF) : Weight measurement (AMA PCPI)	Percentage of patient visits for patients with HF with weight measurement recorded.

NOTES

1. Lloyd-Jones D, Adams RJ, Brown TM, et al. Heart Disease and Stroke Statistics—2010 Update. A Report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. *Circulation*. 2010;121:e1-e170.

APPENDIX A—SPECIFICATIONS FOR THE NATIONAL VOLUNTARY CONSENSUS STANDARDS: CARDIOVASCULAR ENDORSEMENT MAINTENANCE, 2010: A CONSENSUS REPORT

	0018 Controlling high blood pressure
Steward	National Committee for Quality Assurance, 1100 13th Street NW, Suite 1000, Washington, DC 20005
Description	The percentage of patients 18-85 years of age who had a diagnosis of hypertension (HTN) and whose blood pressure (BP) was adequately controlled (<140/90) during the measurement year.
Type	Outcome
Data Source	Electronic administrative data/claims, Electronic Clinical Data, Electronic Health/Medical Record, Paper medical record/flow-sheet
Level	Clinicians: Group, Clinicians: Individual
Setting	All settings, Ambulatory Care: Amb Surgery Center, Ambulatory Care: Clinic, Ambulatory Care: Emergency Dept, Ambulatory Care: Hospital Outpatient, Ambulatory Care: Office
Numerator Statement	The number of patients in the denominator whose most recent, representative BP is adequately controlled during the measurement year. For a member's BP to be controlled, both the systolic and diastolic BP must be <140/90mm Hg.
Numerator Details	Time Window: The measurement year. The number of patients in the denominator whose most recent, representative BP is adequately controlled during the measurement year. For a member's BP to be controlled, both the systolic and diastolic BP must be <140/90 mm Hg. Follow these steps to identify the representative BP: • Identify the most recent blood pressure reading noted during the measurement year. The reading must occur after the date when the diagnosis of hypertension was made or confirmed. Do not include readings that meet the following criteria: taken during an acute inpatient stay or an ED visit, taken during an outpatient visit that was for the sole purpose of having a diagnostic test or surgical procedure performed (e.g., sigmoidoscopy, removal of a mole), taken the same day as a major diagnostic procedure (e.g., stress test, administration of IV contrast for a radiology procedure, endoscopy), reported by or taken by the patient, documentation of "VS within normal limits" or "vital signs normal". • Identify the lowest systolic and lowest diastolic reading from the most recent blood pressure notation in the medical record. If multiple readings were recorded for a single date, use the lowest systolic and the lowest diastolic reading on that date as the representative blood pressure. Results do not need to come from the same reading.
Denominator Statement	Patients 18-85 with hypertension. A patient is considered hypertensive if there is at least one outpatient encounter with a diagnosis of HTN during the first six months of the measurement year.
Denominator Categories	Female; Male 18-85 years
Denominator Details	Time Window: Age range verified as of December 31st of the measurement year, while the hypertensive diagnosis is verified in the first 6 months of the measurement year. Patients 18-85 as of December 31st of the measurement year who meet the following inclusion criteira: Continuous enrollment using health plan data: Patients continuously enrolled during the measurement year with

	0018 Controlling high blood pressure
	no more than one gap in enrollment of up to 45 days during the measurement year. Continuous enrollment using non-health plan data: any enrollment, claim or encounter transaction any time during the measurement year. Event/Diagnosis: Hypertensive: At least one outpatient encounter (Table CBP-B) with a diagnosis of hypertension (Table CBP-A) during the first six months of the measurement year. Table CBP-A: Codes to Identify Hypertension Description ICD-9-CM Diagnosis Hypertension 401 Table CBP-B: Codes to Identify Outpatient Visits Description CPT Outpatient visits: 99201-99205, 99211-99215, 99241-99245, 99384-99387, 99394-99397 The diagnosis of hypertension must be confirmed by chart review on or before June 30 of the measurement year finding notation of one of the following: HTN, High BP, Elevated BP, Borderline HTN, Intermittent HTN, History of HTN, Hypertensive vascular disease, Hyperpiesia, Hyperpiesis.
Exclusions	Exclude from the eligible population all patients with evidence of end-stage renal disease (ESRD) (including dialysis or renal transplant), all patients who are pregnant, and all patients who had an admission to a nonacute inpatient setting on or prior to December 31 of the measurement year.
Exclusion Details	Exclude from the eligible population all patients with evidence of end-stage renal disease (ESRD) on or prior to December 31 of the measurement year. Documentation in the medical record must include a dated note indicating evidence of ESRD. Documentation of dialysis or renal transplant also meets the criteria for evidence of ESRD. • Exclude from the eligible population all members with a diagnosis of pregnancy during the measurement year. • Exclude from the eligible population all members who had an admission to a nonacute inpatient setting any time during the measurement year. Table CBP-C: Codes to Identify ESRD and Pregnancy Exclusions Description: CPT HCPCS ICD-9-CM Diagnosis ICD-9-CM Procedure UB Revenue UB type of Bill POS Evidence of ESRD 36145, 36800, 36810, 36815, 36818, 36819, 36820, 36821, 36831-36833, 50300, 50320, 50340, 50360, 50365, 50370, 50380, 90920, 90921, 90924, 90925, 90935, 90937, 90939, 90940, 90945, 90947, 90989, 90993, 90997, 90999, 99512 G0257 G0308-G0313 G0314-G0319 G0322 G0323 G0326 G0327 G0392 G0393 S9339 585.5, 585.6, V42.0, V45.1 V56 38.95 39.27 39.42 39.43 39.53 39.93-39.95 54.98 55.6 0367 080x 082x 085x 088x 72X 65 Evidence of Pregnancy: ICD-9-CM Diagnosis: 630-679, V22, V23, V28 Table FUH-B codes to identify non-acute inpatient exclusions: Hospice: UB Rev (0115, 0125, 0135, 0145, 0155, 0650, 0656, 0658, 0659), UB Type Bill (81x, 82x), POS (34)

	0018 Controlling high blood pressure
	SNF: UB Rev (019x), UB Type Bill (21x, 22x, 28x), POS (31, 32) Hospital Transitional Care: UB Type Bill (18x) Rehabilitation: UB Rev (0118, 0128, 0138, 0148, 0158) Respite: UB Rev (0655) Intermediate Care Facility: POS (54) Residential Substance Abuse Treatment Facility: UB Rev (1002), POS (55) Psychiatric Residential Treatment Facility Center: HCPCS (T2048, H0017-19), UB Rev (1001), POS (56) Comprehensive Inpatient Rehabilitation Facility: POS (61)
Risk Adjustment	No risk adjustment necessary
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	

	0066 Chronic stable coronary artery disease: ACE Inhibitor or ARB Therapy—diabetes or left ventricular systolic dysfunction (LVEF <40%)
Steward	American Medical Association, 515 N. State St., Chicago, IL 60654
Description	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 LVEF <40% who were prescribed ACE inhibitor or ARB therapy.
Type	Process
Data Source	Electronic administrative data/claims, Electronic Clinical Data, Electronic Health/Medical Record, Registry data URL www.pinnacleregistry.org Attachment PCPI_CAD-8_ACE-ARB Diabetes LVSD NQF 0066.pdf
Level	Clinicians: Group, Clinicians: Individual
Setting	Ambulatory Care: Clinic, Ambulatory Care: Hospital Outpatient, Ambulatory Care: Office, Assisted Living, Group homes, Home, Nursing home (NH)/Skilled Nursing Facility (SNF)
Numerator	Patients who were prescribed ACE inhibitor or ARB therapy.*

	0066 Chronic stable coronary artery disease: ACE Inhibitor or ARB Therapy—diabetes or left ventricular systolic dysfunction (LVEF <40%)
Statement	*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 list.
Numerator Details	Time Window: Once during measurement period. See attached for EHR Specifications. For Claims/Administrative: Report CPT II Code 4009F: Angiotensin converting enzyme (ACE) inhibitor or Angiotensin Receptor Blocker (ARB) therapy prescribed.
Denominator Statement	All 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 LVEF <40%.
Denominator Categories	Female; Male Aged 18 years and older
Denominator Details	Time Window: 12 consecutive months See attached for EHR Specifications. For Claims/Administrative: See coding tables attached for coding (ICD-9-CM, ICD-10-CM, CPT).
Exclusions	Documentation of medical reason(s) for not prescribing ACE inhibitor or ARB therapy (e.g., 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 (e.g., patient declined, other patient reasons). Documentation of system reason(s) for not prescribing ACE inhibitor or ARB therapy (e.g., lack of drug availability, other reasons attributable to the health care system).
Exclusion Details	See attached for EHR Specifications. For Claims/Administrative: Documentation of medical reason(s) for not prescribing ACE inhibitor or ARB therapy • Append modifier to CPT II code 4009F-1P. Documentation of patient reason(s) for not prescribing ACE inhibitor or ARB therapy • Append modifier to CPT II code 4009F-2P. Documentation of system reason(s) for not prescribing ACE inhibitor or ARB therapy • Append modifier to CPT II code 4009F-3P.
Risk Adjustment	No risk adjustment necessary

	0066 Chronic stable coronary artery disease: ACE Inhibitor or ARB Therapy—diabetes or left ventricular systolic dysfunction (LVEF <40%)
Stratification	
Type Score	Rate/proportion better quality = higher score
Algorithm	See attached for calculation algorithm.

	0067 Chronic stable coronary artery disease: Antiplatelet therapy
Steward	American Medical Association, 515 N. State St., Chicago, IL 60654
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.
Type	Process
Data Source	Electronic administrative data/claims, Electronic Clinical Data, Electronic Health/Medical Record, Registry data URL www.pinnacleregistry.org Attachment PCPI_CAD-6_AntiplateletTherapy NQF 0067.pdf
Level	Clinicians: Group, Clinicians: Individual
Setting	Ambulatory Care: Clinic, Ambulatory Care: Hospital Outpatient, Ambulatory Care: Office, Assisted Living, Group homes, Home, Nursing home (NH)/Skilled Nursing Facility (SNF)
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.
Numerator Details	Time Window: Once during the measurement period. See attached for EHR Specifications. For Claims/Administrative: Report CPT II Code 4011F: Oral antiplatelet therapy prescribed
Denominator Statement	All patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12 month period.
Denominator Categories	Female; Male Aged 18 years and older

	0067 Chronic stable coronary artery disease: Antiplatelet therapy
Denominator Details	Time Window: 12 consecutive months See attached for EHR Specifications. For Claims/Administrative: See coding tables attached for coding (ICD-9-CM, ICD-10-CM, CPT).
Exclusions	Documentation of medical reason(s) for not prescribing aspirin or clopidogrel (e.g., allergy, intolerant, receiving other thienopyridine therapy, bleeding coagulation disorders, receiving warfarin therapy, 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).
Exclusion Details	See attached for EHR Specifications. For Claims/Administrative: Documentation of medical reason(s) for not prescribing aspirin or clopidogrel • Append modifier to CPT II code 4011F-1P (in development). Documentation of patient reason(s) for not prescribing aspirin or clopidogrel • Append modifier to CPT II code 4011F-2P (in development). Documentation of system reason(s) for not prescribing aspirin or clopidogrel • Append modifier to CPT II code 4011F-3P (in development).
Risk Adjustment	No risk adjustment necessary
Stratification	
Type Score	Rate/proportion better quality = higher score
Algorithm	See attached for calculation algorithm.

	0068 Ischemic vascular disease (IVD): Use of aspirin or another antithrombotic
Steward	National Committee for Quality Assurance, 1100 13th Street NW, Suite 1000, Washington, DC 20005
Description	The percentage of patients 18 years and older with ischemic vascular disease who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary interventions (PCI) from January 1-November 1 of the year 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 the following during the measurement year. • Use of aspirin or another antithrombotic
Type	Process
Data Source	Electronic administrative data/claims, Electronic Clinical Data, Electronic Health/Medical Record, Paper medical record/flow-sheet
Level	Clinicians: Group, Clinicians: Individual
Setting	All settings, Ambulatory Care: Clinic
Numerator Statement	Use of aspirin or another antithrombotic. Electronic specification: Documentation of use of aspirin or another antithrombotic during the measurement year. Refer to Table IVD-D to identify the code for prescribed oral anti-platelet therapy. Refer to Table IVD-E to identify medications for oral anti-platelet therapy. Medical Record Specification: Documentation of use of aspirin or another antithrombotic during the measurement year. At a minimum, documentation in the medical record must include a note indicating the date on which aspirin or another antithrombotic was prescribed or documentation of prescription from another treating physician.
Numerator Details	Time Window: 12 months Use of aspirin or another antithrombotic. Electronic specification: Documentation of use of aspirin or another antithrombotic during the measurement year. Refer to table IVD-D to identify the code for prescribed oral anti-platelet therapy. Refer to Table IVD-E to identify medications for oral anti-platelet therapy. Medical Record Specification: Documentation of use of aspirin or another antithrombotic during the measurement year. At a minimum, documentation in the medical record must include a note indicating the date on which aspirin or another antithrombotic was prescribed or documentation of prescription from another treating physician.Table IVD-D:

	0068 Ischemic vascular disease (IVD): Use of aspirin or another antithrombotic
	Codes to Identify Prescribed Oral Anti-Platelet Therapy Description CPT Category II ICD-9-CM Diagnosis Oral anti-platelet therapy prescribed 4011F V58.63, V58.66 Table IVD-E: Oral Anti-Platelet Therapies Description Prescription Oral anti-platelet therapies • aspirin • clopidogrel • aspirin-dipyridamole • prasugrel • ticlopidine
Denominator Statement	Patients 18 years or older as of December 31 of the measurement year discharged alive for AMI, CABG or PCI on or between January 1 and November 1 of the year 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 Categories	Female; Male 18 years of age and older
Denominator Details	Time Window: From January 1st of the year prior to the measurement year through December 31st of the measurement year. Patients 18 years or older as of December 31 of the measurement year. Patient inclusion criteria: For physician assessment with generated from a health plan: continuous medical benefit enrollment for the measurement year, with no more than one gap in continuous enrollment of up to 45 days during the measurement year. To determine continuous enrollment for a Medicaid beneficiary for whom enrollment is verified monthly, there may not be more than a 1-month gap in coverage during each year of continuous enrollment. The patient must be enrolled as of December 31 of the measurement year. For physician assessment from data that comes from a non-health plan: Any enrollment, claim or encounter transaction any time during the measurement year. Event/diagnosis Event. Discharged alive for AMI, CABG or PCI on or between January 1 and November 1 of the year prior to the measurement year. Use the codes listed in Table IVD-A to identify AMI, PCI and CABG. AMI and CABG cases should be from inpatient claims only. All cases of PCI should be included, regardless of setting (e.g., inpatient, outpatient, ED). Diagnosis. Identify patients as having IVD who met at least one of the two criteria below, 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 (Table IVD-C) with an IVD diagnosis (Table IVD-B), or • At least one acute inpatient visit (Table IVD-C) with an IVD diagnosis (Table IVD-B).

	0068 Ischemic vascular disease (IVD): Use of aspirin or another antithrombotic
	Medical record data: 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 EMRs to identify the denominator, then use the medical record to confirm patient eligibility. Table IVD-A: Codes to Identify AMI, PCI and CABG Description CPT HCPCS ICD-9-CM Diagnosis ICD-9-CM Procedure AMI (inpatient only) 410.x1 CABG (inpatient only) 33510-33514, 33516-33519, 33521-33523, 33533-33536 S2205-S2209 36.1, 36.2 PCI 92980, 92982, 92995 G0290 00.66, 36.06, 36.07 Table IVD-B: Codes to Identify IVD Description ICD-9-CM Diagnosis IVD 411, 413, 414.0, 414.2, 414.8, 414.9, 429.2, 433, 434, 440.1, 440.2, 440.4, 444, 445 Table IVD-C: Codes to Identify Visit Type Description CPT UB Revenue Outpatient 99201-99205, 99211-99215, 99217-99220, 99241-99245, 99341-99345, 99347-99350, 99384-99387, 99394-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455, 99456 051x, 0520-0523, 0526-0529, 057x-059x, 0982, 0983 Acute inpatient 99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99261-99263, 99291 010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x-021x, 072x, 0987Medical record text Coronary artery disease Stable angina Lower extremity arterial disease/peripheral artery disease

	0068 Ischemic vascular disease (IVD): Use of aspirin or another antithrombotic
	Ischemia Stroke Artheroembolism Renal artery atherosclerosis
Exclusions	None
Exclusion Details	None
Risk Adjustment	No risk adjustment necessary
Stratification	None
Type Score	Rate/proportion better quality = higher score
Algorithm	NA

	0071 Acute myocardial infarction (AMI): Persistence of beta-blocker treatment after a heart attack
Steward	National Committee for Quality Assurance, 1100 13th Street NW, Suite 1000, Washington, DC 20005
Description	The percentage of patients age 18 years and older during the measurement year who were hospitalized and discharged alive July 1 of the year prior to the measurement year through June 30 of the measurement year with a diagnosis of acute myocardial infarction (AMI) and who received persistent beta-blocker treatment for six months after discharge.
Type	Process
Data Source	Electronic administrative data/claims, Electronic Clinical Data, Electronic Health/Medical Record, Paper medical record/flow-sheet, Pharmacy data
Level	Clinicians: Group, Clinicians: Individual, Health Plan
Setting	All settings, Ambulatory Care: Clinic
Numerator Statement	A 180-day course of treatment with beta-blockers post discharge.
Numerator Details	Time Window: Six months after discharge from a hospital with AMI (with the discharge anywhere from July 1 of the year prior to the measurement year through June 30 of the measurement year). Identify all patients in the denominator population whose dispensed days supply is ≥135 days in the 180 days following discharge. Persistence of treatment for this measure is defined as at least 75 percent of the days supply filled. To determine continuity of treatment during the 180-day period, sum the number of allowed gap days to the number of treatment days for a maximum of 180 days (i.e., 135 treatment days + 45 gap days = 180 days); identify all prescriptions filled within 180 days of the Discharge Date. To account for members who are on beta-blockers prior to admission, the organization should factor those prescriptions into adherence rates if the actual treatment days fall within the 180 days following discharge. Table PBH-B Beta Blocker Medications: Noncardioselective beta-blockers (carteolol, carvedilol, labetalol, nadolol, penbutolol, pindolol, propranolol, timolol, sotalol), cardioselective beta-blockers (acebutolol, atenolol, betaxolol, bisoprolol, metoprolol, nebivolol), Antihypertensive combinations (atenolol-chlorthalidone, bendroflumethiazide-nadolol, bisoprolol-hydrochlorothiazide, hydrochlorothiazide-propranolol, hydrochlorothiazide-metoprolol, hydrochlorothiazide-timolol).
Denominator Statement	Patients 18 years and older as of December 31 of the measurement year discharged alive from an acute inpatient setting with an AMI from July 1 of the year prior to the measurement year through June 30 of the measurement year.
Denominator	Female; Male 18 years and older

	0071 Acute myocardial infarction (AMI): Persistence of beta-blocker treatment after a heart attack
Categories	
Denominator Details	Time Window: July 1 of the year prior to the measurement year through June 30 of the measurement year. Patients 18 years and older as of December 31 of the measurement year discharged alive from an acute inpatient setting with an AMI from July 1 of the year prior to the measurement year through June 30 of the measurement year. If using health plan data, patient should have continuous medical and pharmacy benefit enrollment on the discharge date through 180 days after discharge, with no more than one gap in enrollment of up to 45 days within 180 days of the event. If the patient is a Medicaid beneficiary, the patient may not have more than 1 month gap in coverage and must be enrolled on the discharge date. If using non-health plan data, the patient must have a pharmacy claim or prescription written July 1 of the year prior to the measurement year through 180 days post-discharge to be included. If a patient has more than one episode of AMI from July 1 of the year prior to the measurement year through June 30 of the measurement year, only the first discharge should be included. Transfers to acute facilities: include hospitalizations in which the patient was transferred directly to another acute inpatient facility for any diagnosis. Count the discharge from the subsequent acute inpatient facility, not the inital discharge. The discharge date from the facility to which the patient was transferred must occur on or before June 30 of the measurement year. Readmissions: If the patient was readmitted to an acute or nonacute care facility for any diagnosis, include the patient in the denominator and use the discharge date from the original hospitalization. Description ICD-9-CM Diagnosis AMI 410.x1
Exclusions	Exclude patients who are identified as having a contraindication to beta-blocker therapy or previous adverse reaction to beta-blocker therapy. Also exclude from the denominator hospitalizations in which the patient was transferred directly to a nonacute care facility for any diagnosis.
Exclusion Details	Exclude patients who are identified as having a contraindication to beta-blocker therapy or previous adverse reaction to beta-blocker therapy. Look as far back as possible in the patients' history through either administrative data or medical record review for evidence of contraindication or a previous adverse reaction to beta-blocker therapy. Also exclude from the denominator hospitalizations in which the patient was transferred directly to a nonacute care facility for any diagnosis. Table PBH-C: ICD-9 codes to identify exclusions: history of asthma: 493; hypotension: 458; heart block >1 degree: 426.0, 426.12, 426.13, 426.2-426.4, 426.51-426.54, 426.7; sinus bradycardia: 427.81; COPD: 491.2, 496, 506.4 Table PBH-D Medications to Identify Exclusions (hx of asthma): Bronchodilator combinations (budesonide-formoterol, fluticasone-salmeterol), inhaled corticosteroids (beclomethasone, budesonide, flunisolide, fluticasone,

	0071 Acute myocardial infarction (AMI): Persistence of beta-blocker treatment after a heart attack
	mometasone, triamcinolone, fluticasone CFC free).
Risk Adjustment	No risk adjustment necessary NA
Stratification	None
Type Score	Rate/proportion better quality = higher score
Algorithm	NA

	0073 IVD: Blood pressure management
Steward	National Committee for Quality Assurance, 1100 13th Street NW, Suite 1000, Washington, DC 20005
Description	The percentage of patients 18 years of age and older who were discharged alive with acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary interventions (PCI) from January 1-November 1 of the year 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 BP reported as under control <140/90.
Type	Outcome
Data Source	Electronic administrative data/claims, Electronic Clinical Data, Electronic Health/Medical Record, Paper medical record/flow-sheet
Level	Clinicians: Group, Clinicians: Individual
Setting	All settings, Ambulatory Care: Clinic
Numerator Statement	The numerator is the number of patients in the denominator whose most recent blood pressure is adequately controlled during the measurement year. For a patient's BP to be controlled, both the systolic and the diastolic BP must meet the desired threshold of <140/90 mm Hg.
Numerator Details	Time Window: 12 months The numerator is the number of patients in the denominator whose most recent blood pressure is adequately controlled during the measurement year. For a patient's BP to be controlled, both the systolic and the diastolic BP must meet the desired threshold of <140/90 mm Hg. Electronic Specification: If using electronic data to identify the most recent BP reading during the measurement year, calculate a numerator using the CPT Category II codes in Table IVD-G to determine compliance with the threshold. If CPT Category II codes are used to identify numerator compliance for this indicator, search for all codes in Table IVD-G and use the most recent code to evaluate whether the patient is numerator compliant. If a combination of data from internal electronic databases and CPT Category II codes is being used, search all sources and use the most recent result. If there are multiple BPs on the same date of service, use the lowest systolic and lowest diastolic BP on that date as the representative BP. The patient is noncompliant in the following circumstances. • The electronic result for the most recent BP test exceeds the desired threshold. • The BP test result is missing. • A BP test was not done during the measurement year. Do not include readings that meet the following criteria: • Taken during an acute inpatient stay or an ED visit. • Taken during an outpatient visit which was for the sole purpose of having a diagnostic test or surgical procedure

	0073 IVD: Blood pressure management
	performed. • Taken the same day as major diagnostic or surgical procedure. • Reported by or taken by the patient. • Documentation of "VS within normal limits" or "vital signs normal". Medical Record Specification: To identify the representative blood pressure, follow these steps: • Identify the most recent blood pressure reading noted during the measurement year. Do not include readings that meet the criteria as listed above under the electronic specification (i.e taken during an ED visit, etc.). • Identify the lowest systolic and lowest diastolic reading from the most recent blood pressure notation in the medical record. If there are multiple readings for a single date, use the lowest systolic and the lowest diastolic reading on that date as the representative blood pressure. The systolic and diastolic results do not need to be from the same reading. Table IVD-G: Codes to Identify Systolic and Diastolic BP Levels Description — CPT Category II Systolic pressure <140mm Hg — 3076F Systolic pressure ≥140 mm Hg — 3077F Diastolic pressure <80 mm Hg — 3078F Diastolic pressure 80-89 mm Hg — 3079F Diastolic pressure ≥ 90 mm Hg — 3080F
Denominator Statement	Patients 18 years or older as of December 31 of the measurement year who were discharged alive for AMI, CABG or PCI on or between January 1 and November 1 of the year 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 Categories	Female; Male 18 years and older
Denominator Details	Time Window: Between January 1st of the year prior to the measurement year through December 31st of the measurement year. Patients 18 years or older as of December 31 of the measurement year who met the following patient inclusion criteria: • If calculating physician performance from health plan data: Continuous medical benefit enrollment for the measurement year, with no more than one gap in continuous enrollment of up to 45 days during the measurement year. To determine continuous enrollment for a Medicaid beneficiary for whom enrollment is verified monthly, there may not be more than a 1-month gap in coverage during each year of continuous enrollment. The patient must be enrolled as of December 31 of the measurement year. • For calculating physician performance from non-health plan data. Any enrollment, claim or encounter transaction any time during the measurement year.

	0073 IVD: Blood pressure management
	Event/ Diagnosis Event: Discharged alive for AMI, CABG or PCI on or between January 1 and November 1 of the year prior to the measurement year. Use the codes listed in Table IVD-A to identify AMI, PCI and CABG. AMI and CABG cases should be from inpatient claims only. All cases of PCI should be included, regardless of setting (e.g., inpatient, outpatient, ED). Diagnosis. Identify patients as having IVD who met at least one of the two criteria below, 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 (Table IVD-C) with an IVD diagnosis (Table IVD-B), or • At least one acute inpatient visit (Table IVD-C) with an IVD diagnosis (Table IVD-B). Table IVD-A: Codes to Identify AMI,PCI, and CABG Description CPT HCPCS ICD-9-CM Diagnosis ICD-9-CM Procedure AMI (inpatient only) 410.x1 CABG (inpatient only) 33510-33514, 33516-33519, 33521-33523, 33533-33536 S2205-S2209 36.1, 36.2 PCI 92980, 92982, 92995 00.66, 36.06, 36.07 Table IVD-B: Codes to Identify IVD Description ICD-9-CM Diagnosis IVD 411, 413, 414.0, 414.2, 414.8, 414.9, 429.2, 433-434, 440.1, 440.2, 440.4, 444, 445 Table IVD-C: Codes to Identify Visit Type Description CPT UB Revenue Outpatient 99201-99205, 99211-99215, 99217-99220, 99241-99245, 99341-99345, 99347-99350, 99384-99387, 99394-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455, 99456 051x, 0520-0523, 0526-0529, 057x-059x, 0982, 0983 Acute inpatient 99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99261-99263, 99291 010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x-021x, 072x, 0987 Medical record data Documentation of IVD in the medical record includes: • IVD • Ischemic heart disease • Angina • Coronary atherosclerosis • Coronary artery occlusion

	0073 IVD: Blood pressure management
	• 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 EMRs to identify the denominator, then use the medical record to confirm patient eligibility.
Exclusions	All patients with ESRD, who are pregnant or who had an admission to a non-acute inpatient setting during the measurement year.
Exclusion Details	• All patients with ESRD (Table CBP-C) on or prior to 12/31 of the measurement year. Documentation in the medical record must include a date noted indicating ESRD, dialysis or renal transplant meets the criterion for evidence of ESRD. • All patients who are pregnant (Table CBP-C) during the measurement year. • All patients who had an admission to a non-acute inpatient setting (Table FUH-B) any time during the measurement year. Table CBP-C Codes to Identify ESRD & Pregnancy Exclusions: Evidence of ESRD: CPT (36145, 36147, 36800, 36810, 36815, 36818, 36819, 36820, 36821, 36831-36833, 50300, 50320, , 50340, 50360, 50365, 50370, 50380, 90920, 90921, 90924, 90925, 90935, 90937, 90940, 90945, 90947, 90957-90962, 90965, 90966, 90969, 90970, 90989, 90993, 90997, 90999, 99512), HCPCS (G0257, G0308-G0319, G0322, G0323, G0326, G0327, G0392, G0393, S9339), ICD-9 diagnosis (585.5, 585.6, V42.0, V45.1, V56), ICD-9 Procedure (38.95, 39.27, 39.42, 39.43, 39.53, 39.93-39.95, 54.98, 55.6), UB Revenue (0367, 080x, 082x-085x, 088x), UB Type of Bill (72X), POS (65) Pregnancy: ICD-9 Diagnosis (630-679, V22, V23, V28) Table FUH-B to identify non-acute inpatient exclusions: Hospice: UB Rev (0115, 0125, 0135, 0145, 0155, 0650, 0656, 0658, 0659), UB Type Bill (81x, 82x), POS (34) SNF: UB Rev (019x), UB Type Bill (21x, 22x, 28x), POS (31, 32) Hospital Transitional Care: UB Type Bill (18x) Rehabilitation: UB Rev (0118, 0128, 0138, 0148, 0158) Respite:UB Rev (0655) Intermediate Care Facility: POS (54) Residential Substance Abuse Treatment Facility: UB Rev (1002), POS (55) Psychiatric Residential Treatment Facility Center: HCPCS (T2048, H0017-19), UB Rev (1001), POS (56) Comprehensive Inpatient Rehabilitation Facility: POS (61)

	0073 IVD: Blood pressure management
Risk Adjustment	No risk adjustment necessary
Stratification	NA
Type Score	Rate/proportion better quality = higher score
Algorithm	NA

	0074 Chronic stable coronary artery disease: Lipid control
Steward	American Medical Association, 515 N. State St., Chicago, IL 60654
Description	Percentage of patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12 month period who have a LDL-C result <100 mg/dL OR patients who have a LDL-C result ≥100 mg/dL and have a documented plan of care to achieve LDL-C <100mg/dL, including at a minimum the prescription of a statin.
Type	Process
Data Source	Electronic administrative data/claims, Electronic Clinical Data, Electronic Health/Medical Record, Registry data URL www.pinnacleregistry.org Attachment PCPI_CAD-2_LipidControl NQF 0074.pdf
Level	Clinicians: Group, Clinicians: Individual
Setting	Ambulatory Care: Clinic, Ambulatory Care: Hospital Outpatient, Ambulatory Care: Office, Assisted Living, Group homes, Home, Nursing home (NH)/Skilled Nursing Facility (SNF)
Numerator Statement	Patients who have a LDL-C result <100 mg/dL OR Patients who have a LDL-C result ≥100 mg/dL and have a documented plan of care1 to achieve LDL-C <100 mg/dL, including at a minimum the prescription of a statin within a 12 month period. Definitions: *Documented plan of care may also include: documentation of discussion of lifestyle modifications (diet, exercise); scheduled re-assessment of LDL-C. *Prescribed may include prescription given to the patient for a statin at one or more visits in the measurement period OR patient already taking a statin as documented in current medication list. Numerator Instructions: The first numerator option can be reported for patients who have a documented LDL-C < 100 mg/dL at any time during the measurement period.
Numerator Details	Time Window: See attached for EHR Specifications. For Claims/Administrative: Report CPT II Code Patients who have LDL-C <100 mg/dL 3048F Most recent LDL-C <100 mg/dL OR Patients who have LDL-C =100 mg/dL and have a documented plan of care to achieve LDL-C <100 mg/dL, including prescription of lipid-lowering therapy

	0074 Chronic stable coronary artery disease: Lipid control
	• 3049F Most recent LDL-C 100-129 mg/dL OR • 3050F Most recent LDL-C greater than or equal to 130 mg/dL AND • 05XXF (code in development) Lipid lowering therapy plan of care documented AND • 4002F Statin therapy prescribed.
Denominator Statement	All patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12 month period.
Denominator Categories	Female; Male Aged 18 years and older
Denominator Details	Time Window: 12 consecutive months See attached for EHR Specifications. For Claims/Administrative: See coding tables attached for coding (ICD-9-CM, ICD-10-CM, CPT).
Exclusions	Documentation of medical reason(s) for not prescribing a statin (e.g., allergy, intolerance to statin medication(s), other medical reasons). Documentation of patient reason(s) for not prescribing a statin (e.g., patient declined, other patient reasons). Documentation of system reason(s) for not prescribing a statin (e.g., financial reasons, other system reasons).
Exclusion Details	See attached for EHR Specifications. For Claims/Administrative: Documentation of medical reason(s) for not prescribing a statin (e.g., allergy, intolerance to statin medication(s), other medical reasons) • Append modifier to CPT II code 4XXXF-1P (in development). Documentation of patient reason(s) for not prescribing a statin (e.g., patient declined, other patient reasons) • Append modifier to CPT II code 4XXXF-2P (in development). Documentation of system reason(s) for not a statin (e.g., financial reasons, other system reasons) • Append modifier to CPT II code 4XXXF-3P (in development).
Risk Adjustment	No risk adjustment necessary
Stratification	

	0074 Chronic stable coronary artery disease: Lipid control
Type Score	Rate/proportion better quality = higher score
Algorithm	See attached for calculation algorithm.

	0075 IVD: Complete lipid profile and ldl control <100
Steward	National Committee for Quality Assurance, 1100 13th Street NW, Suite 1000, Washington, DC 20005
Description	The percentage of patients 18 years of age and older who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary interventions (PCI) from January 1-November 1 of the year prior to the measurement year, or who had a diagnosis of ischemic vascular disease (IVD) during the measurement year and the year prior to measurement year, who had each of the following during the measurement year. • Complete Lipid Profile • LDL-C control <100 mg/dL
Type	Outcome
Data Source	Electronic administrative data/claims, Electronic Clinical Data, Electronic Health/Medical Record, Lab data, Paper medical record/flow-sheet
Level	Clinicians: Group, Clinicians: Individual
Setting	All settings, Ambulatory Care: Clinic
Numerator Statement	A complete lipid profile performed during the measurement year. A LDL-C control result of <100 mg/dL using the most recent LDL-C screening test during the measurement year.
Numerator Details	Time Window: 12 months Electronic Specification: Complete Lipid Profile: A complete lipid profile performed during the measurement year (Table IVD-F) as identified by claim/encounter or electronic laboratory data. LDL-C Control: <100 mg/dL Use electronic laboratory data during the measurement year. Calculate a numerator by using the most recent LDL-C screening test. Use the CPT Category II codes in Table CMC-E to determine compliance. The patient is non compliant if: the electronic results for the most recent LDL-C test exceed the desired threshold, the electronic result for the most recent LDL-C test is missing or an LDL-C test was not done during the measurement year. Medical Record Specification: Complete Lipid Profile: A full lipid profile completed during the measurement year, with the date and result of each component of the profile documented. Identify the most recent visit ot the doctor´s office or clinic where a full lipid profile was documented and which occurred during the measurement year (but after the diagnosis of IVD was made). Each component of the lipid profile must be noted with the date of the test and results. LDL Control <100: The number of patients in the denominator whose LDL-C is adequately controlled during the measurement year. Use the most recent LDL-C level performed during the measurement year. At a minimum documentation in the record must include a note indicating the date when the test was performed and the result.

	0075 IVD: Complete lipid profile and ldl control <100
	Table IVD-F: Codes to Identify a Complete Lipid Profile Description CPT CPT Category II Lipid panel 80061 3011F OR Description CPT LOINC Total cholesterol 82465 2093-3, 14647-2 WITH High density lipoprotein (HDL) 83701 2085-9, 14646-4, 18263-4 AND Triglycerides 84478 2571-8, 12951-0, 14927-8, 47210-0 Table CMC-E: CPT category II codes to identify LDL-C levels LDL-C <100: 3048F LDL-C 100-129: 3049F LDL-C ≥130: 3050F
Denominator Statement	Patients 18 years of age an older as of December 31st of the measurement year who were discharged alive for AMI, CABG or PCI on or between January 1 and November 1 of the year 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 Categories	Female; Male 18 years and older
Denominator Details	Time Window: Between January 1 of the year prior to the measurement year and December 31st of the measurement year. Patients 18 years or older as of December 31 of the measurement year who met the following patient inclusion criteria: For data on physician performance generated from a health plan: Continuous medical benefit enrollment for the measurement year, with no more than one gap in continuous enrollment of up to 45 days during the measurement year. To determine continuous enrollment for a Medicaid beneficiary for whom enrollment is verified monthly, there may not be more than a 1-month gap in coverage during each year of continuous enrollment. The patient must be enrolled as of December 31 of the measurement year. For data on physician performance generated from non-health plan data: Any enrollment, claim or encounter transaction any time during the measurement year. Event/ diagnosis: Event. Discharged alive for AMI, CABG or PCI on or between January 1 and November 1 of the year prior to the measurement year. Use the codes listed in Table IVD-A to identify AMI, PCI and CABG. AMI and CABG cases should be from inpatient claims only. All cases of PCI should be included, regardless of setting (e.g., inpatient, outpatient, ED). Diagnosis. Identify patients as having IVD who met at least one of the two criteria below, 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 (Table IVD-C) with an IVD diagnosis (Table IVD-B), or • At least one acute inpatient visit (Table IVD-C) with an IVD diagnosis (Table IVD-B). Medical record data Documentation of IVD in the medical record includes:

	0075 IVD: Complete lipid profile and ldl control <100
	• 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 EMRs to identify the denominator, then use the medical record to confirm patient eligibility. Exclusions None. Table IVD-A: Codes to Identify AMI, PCI and CABG Description CPT HCPCS ICD-9-CM Diagnosis ICD-9-CM Procedure AMI (inpatient only) 410.x1 CABG (inpatient only) 33510-33514, 33516-33519, 33521-33523, 33533-33536 S2205-S2209 36.1, 36.2 PCI 92980, 92982, 92995 G0290 00.66, 36.06, 36.07 Table IVD-B: Codes to Identify IVD Description ICD-9-CM Diagnosis IVD 411, 413, 414.0, 414.2, 414.8, 414.9, 429.2, 433, 434, 440.1, 440.2, 440.4, 444, 445 Source: Table CMC-B in Cholesterol Management for Patients With Cardiovascular Conditions. Table IVD-C: Codes to Identify Visit Type Description CPT UB Revenue Outpatient 99201-99205, 99211-99215, 99217-99220, 99241-99245, 99341-99345, 99347-99350, 99384-99387, 99394-99397, 99401-99404, 99411, 99412, 99420, 99429, 99455, 99456 051x, 0520-0523, 0526-0529, 057x-059x, 0982, 0983 Acute inpatient 99221-99223, 99231-99233, 99238, 99239, 99251-99255, 99261-99263, 99291 010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x-021x, 072x, 0987
Exclusions	None
Exclusion Details	None
Risk	No risk adjustment necessary

	0075 IVD: Complete lipid profile and ldl control <100
Adjustment	NA
Stratification	NA
Type Score	Rate/proportion better quality = higher score
Algorithm	NA

	0076 Optimal vascular care
Steward	MN Community Measurement, 3433 Broadway Street NE, Suite 455, Minneapolis MN 55413
Description	Percentage of adult patients ages 18 to 75 who have ischemic vascular disease with optimally managed modifiable risk factors (LDL, blood pressure, tobacco-free status, daily aspirin use).
Type	Outcome
Data Source	Electronic Clinical Data : Electronic Health Record, Electronic Clinical Data : Registry, Paper Records URL www.mncm.org/site/?p=resources URL www.mncm.org/site/?p=resources
Level	Clinician: Group/Practice Clinic site location
Setting	Ambulatory Care: Clinic/Urgent Care, Ambulatory Care: Clinician Office
Numerator Statement	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: LDL less than 100, Blood Pressure less than 140/90, Tobacco-Free Status, Daily Aspirin Use (unless contraindicated). Please note: On 7/27/2010, the blood pressure component of this measure was changed for patients with a co-morbidity of diabetes (target less than 140/90). MNCM's technical advisory group recommended this changed based on ACCORD results, ICSI's most recent guideline changes (July 2010), and the national meaningful use measures for diabetes blood pressure control. A target of less than 140/90 allows for individualization of patient goals. On March 9, 2011, the measurement and reporting committee reviewed recent ICSI guideline changes for blood pressure targets for stable coronary artery disease and hypertension and additionally considered the request of the NQF cardiovascular committee and decided to change the blood pressure target to < 140/90 for all IVD patients. Values are collected as the most recent during the measurement period (January 1 through December 31), with the exception of the LDL value which is collected over a 15 month time span to allow a greater window of time for patients that may not complete a cholesterol test within the 12 month time frame, but do complete a cholesterol test within 15 months (October 1 of the previous year through December 31 of the measurement year).
Numerator Details	Time Window: Numerator for the LDL Component: LDL Date [Date (mm/dd/yyyy)] AND LDL Value [Numeric] Numerator calculation: numerator compliant is LDL during the last 15 months AND LDL value is less than 100. Enter the date of the most recent LDL test prior to and including 12/31/YYYY (measurement period).

	0076 Optimal vascular care
	Enter the value of the most recent LDL test prior to and including 12/31/ YYYY (measurement period). Numerator for the Blood Pressure Component: Blood Pressure Date [Date (mm/dd/yyyy)] AND BP Systolic [Numeric] AND BP Diastolic [Numeric] Numerator calculation: numerator compliant is BP during the measurement period AND the following targets: Systolic <140 AND Diastolic <90. Enter the date of the most recent Blood Pressure (BP) test 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] 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 valid date Enter the most recent date (prior to and including 12/31/YYYY (measurement period) that the patient's tobacco status was documented. Numerator for the Aspirin Component: Aspirin Use or Documented Contraindication for the use of aspirin. 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. The following are accepted ASA or anti-platelet medications: • Aspirin (ASA) • Plavix (clopidogrel) • Ticlid (ticlopidine) Pravigard (aspirin/pravastatin) Aggrenox (aspirin/dypyridamole) • Low dose enteric-coated 81 mg ASA (Ecotrin or Bayer) OR Aspirin (ASA) Contraindication Date [Date (mm/dd/yyyy)].

	0076 Optimal vascular care
	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, Lovenox (Enoxaparin) or Coumadin (Warfarin) • 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.
Denominator Statement	Patients ages 18 to 75 with ischemic vascular disease who have at least two visits for this condition over the last two years (established patient) with at least one visit in the last 12 months.
Denominator Categories	Female; Male Ages 18 to 75 during the measurement period
Denominator Details	Time Window: Birth date [Date (mm/dd/yyyy)] Ischemic vascular disease ICD-9 codes: 410-410.92 Acute Myocardial Infarction (AMI) 411-411.89 Post Myocardial Infarction Syndrome 412 Old AMI 413-413.9 Angina Pectoris 414.0-414.07 Coronary Arthrosclerosis 414.2 Chronic Total Occlusion of Coronary Artery 414.8 Other Chronic Ischemic Heart Disease (IHD) 414.3 Atherosclerosis due to lipid rich plaque 414.9 Chronic IHD 429.2 Cardiovascular (CV) disease, unspecified 433-433.91 Occlusion and stenosis of pre-cerebral arteries 434-434.91 Occlusion of cerebral arteries 440.1 Atherosclerosis of renal artery 440.2-440.29 Atherosclerosis of native arteries of the extremities, unspecified 440.4 Chronic Total Occlusion of Artery of the Extremities 444-444.9 Arterial embolism and thrombosis 445-445.8 Atheroembolism.
Exclusions	Valid exclusions include patients who only had one coded visit to the clinic during the last two years, patients who had died during the measurement period, patients who were 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.

	0076 Optimal vascular care
Exclusion Details	Patient was a permanent nursing home resident home during the measurement period. Patient was in hospice at any time during the measurement period. Patient died prior to the end of the measurement period. Documentation that diagnosis was coded in error.
Risk Adjustment	Case-mix adjustment Attachment MNCM Case Mix Risk Adjustment June 2010-634242034150216836.docx
Stratification	
Type Score	Weighted score/composite/scale better quality = higher score
Algorithm	

	0079 Heart failure: Left ventricular ejection fraction assessment (outpatient setting)
Steward	American Medical Association, 515 N State St., Chicago, IL 60654
Description	Percentage of patients aged 18 years and older with a diagnosis of heart failure for whom the quantitative or qualitative results of a recent or prior (any time in the past) LVEF assessment is documented within a 12 month period.
Type	Process
Data Source	Electronic administrative data/claims, Electronic Clinical Data, Electronic Health/Medical Record, Paper medical record/flow-sheet, Registry data URL www.pinnacleregistry.org Attachment NQF 0079_PCPI_HF-1_LVEF Assessment.pdf
Level	Clinicians: Group, Clinicians: Individual
Setting	Ambulatory Care: Clinic, Ambulatory Care: Hospital Outpatient, Ambulatory Care: Office, Assisted Living, Group homes, Home, Nursing home (NH)/Skilled Nursing Facility (SNF)
Numerator Statement	Patients for whom the quantitative or qualitative results of a recent or prior (any time in the past) LVEF assessment is documented* within a 12 month period. *Documentation must include documentation in a progress note of the results of an LVEF assessment, regardless of when the evaluation of ejection fraction was performed. Qualitative results correspond to numeric equivalents as follows: Hyperdynamic: corresponds to LVEF greater than 70% Normal: corresponds to LVEF 50% to 70% (midpoint 60%) Mild dysfunction: corresponds to LVEF 40% to 49% (midpoint 45%) Moderate dysfunction: corresponds to LVEF 30% to 39% (midpoint 35%) Severe dysfunction: corresponds to LVEF less than 30%.
Numerator Details	Time Window: Once during the measurement period. See attached for EHR Specifications. For Claims/Administrative: Report CPT Category II Code 3021F- Left ventricular ejection fraction (LVEF) < 40% or documentation of moderately or severely depressed left ventricular systolic dysfunction OR CPT Category II Code 3022F- Left ventricular ejection fraction (LVEF) ≥ 40% or documentation as normal function or mildly depressed left ventricular systolic function.
Denominator Statement	All patients aged 18 years and older with a diagnosis of heart failure.

	0079 Heart failure: Left ventricular ejection fraction assessment (outpatient setting)
Denominator Categories	Female; Male 18 years of age and older
Denominator Details	Time Window: 12 consecutive months See attached for EHR Specifications. For Claims/Administrative: See coding tables attached for coding (ICD-9-CM, ICD-10-CM, SNOMED, CPT).
Exclusions	None
Exclusion Details	
Risk Adjustment	No risk adjustment necessary
Stratification	
Type Score	Rate/proportion better quality = higher score
Algorithm	See attached for calculation algorithm.

	0081 Heart failure: Angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy for left ventricular systolic dysfunction
Steward	American Medical Association, 515 N State St., Chicago, IL 60654
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 ACE inhibitor or ARB therapy either within a 12 month period when seen in the outpatient setting or at hospital discharge.
Type	Process
Data Source	Electronic administrative data/claims, Electronic Clinical Data, Electronic Health/Medical Record, Paper medical record/flow-sheet, Registry data URL www.pinnacleregistry.org Attachment NQF 0081_PCPI_HF-7_ACE ARB for LVSD.pdf
Level	Clinicians: Group, Clinicians: Individual
Setting	Ambulatory Care: Clinic, Ambulatory Care: Hospital Outpatient, Ambulatory Care: Office, Assisted Living, Group homes, Home, Hospital, Nursing home (NH) /Skilled Nursing Facility (SNF)
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 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.
Numerator Details	Time Window: Once during the measurement period (outpatient/nursing home) OR at each hospital discharge. See attached for EHR Specifications. For Claims/Administrative: Report CPT Category II Code 4009F- Angiotensin converting enzyme (ACE) inhibitor or Angiotensin Receptor Blocker (ARB) therapy prescribed.
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.
Denominator Categories	Female; Male 18 years of age and older
Denominator Details	Time Window: 12 consecutive months Note: For the inpatient setting (CPT 99239, 99239), the diagnosis refers to the principal discharge diagnosis. The principal diagnosis is typically the first listed on the inpatient claim form with secondary or attributed diagnoses to follow in descending order of importance. ICD-9-CM Diagnosis Code:

	0081 Heart failure: Angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy for left ventricular systolic dysfunction
	Note: Although this measure is limited to patients with left ventricular systolic dysfunction, diastolic ICD-9-CM codes are included to provide invariability in coding among measures. See attached for EHR Specifications. For Claims/Administrative: See coding tables attached for coding (ICD-9-CM, ICD-10-CM, CPT) AND Report CPT Category II Code (in development) 3021F- Left ventricular ejection fraction (LVEF) < 40% or qualitative documentation of moderate dysfunction or severe dysfunction.
Exclusions	Documentation of medical reason(s) for not prescribing ACE inhibitor or ARB therapy; Append modifier to CPT II code 4009F-1P. Documentation of patient reason(s) for not prescribing ACE inhibitor or ARB; Append modifier to CPT II code 4009F-2P. Documentation of system reason(s) for not prescribing ACE inhibitor or ARB; Append modifier to CPT II code 4009F-3P.
Exclusion Details	See attached for EHR specifications. For Claims/Administrative: See coding tables attached for coding (ICD-9-CM, ICD-10-CM, SNOMED, CPT).
Risk Adjustment	No risk adjustment necessary
Stratification	
Type Score	Rate/proportion better quality = higher score
Algorithm	See attached for calculation algorithm.

	0083 Heart failure: Beta-blocker therapy for left ventricular systolic dysfunction
Steward	American Medical Association, 515 N State St., Chicago, IL 60654
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.
Type	Process
Data Source	Electronic administrative data/claims, Electronic Clinical Data, Electronic Health/Medical Record, Paper medical record/flow-sheet, Registry data URL www.pinnacleregistry.org Attachment NQF 0083_PCPI_HF-6_Beta Blocker for LVSD.pdf
Level	Clinicians: Group, Clinicians: Individual
Setting	Ambulatory Care: Clinic, Ambulatory Care: Hospital Outpatient, Ambulatory Care: Office, Assisted Living, Group homes, Home, Hospital, Nursing home (NH)/Skilled Nursing Facility (SNF)
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 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. **Beta-blocker therapy should include bisoprolol, carvedilol, or sustained release metoprolol succinate.
Numerator Details	Time Window: Once during the measurement period. See attached for EHR Specifications. For Claims/Administrative: Report CPT Category II Code: 4006F- Beta-blocker therapy prescribed.
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.
Denominator Categories	Female; Male 18 years and older
Denominator Details	Time Window: 12 consecutive months See attached for EHR Specifications. For Claims/Administrative: See coding tables attached for coding (ICD-9-CM, ICD-10-CM, SNOMED, CPT) AND Report CPT Category II Code (in development)3021F- Left ventricular ejection fraction (LVEF) < 40% or

	0083 Heart failure: Beta-blocker therapy for left ventricular systolic dysfunction
	documentation of moderately or severely depressed left ventricular systolic function.
Exclusions	Documentation of medical reason(s) for not prescribing beta-blocker therapy. Documentation of patient reason(s) for not prescribing beta-blocker therapy. Documentation of system reason(s) for not prescribing beta-blocker therapy.
Exclusion Details	See attached for EHR Specifications. For Claims/Administrative: See coding tables attached for coding (ICD-9-CM, ICD-10-CM, SNOMED, CPT) • Append modifier to CPT II code 4006F-1P • Append modifier to CPT II code 4006F-2P • Append modifier to CPT II code 4006F-3P.
Risk Adjustment	No risk adjustment necessary
Stratification	
Type Score	Rate/proportion better quality = higher score
Algorithm	See attached for calculation algorithm

	0132 Aspirin at arrival for acute myocardial infarction (AMI)
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Baltimore, MD 21244-1850
Description	Percentage of acute myocardial infarction (AMI) patients who received aspirin within 24 hours before or after hospital arrival.
Type	Process
Data Source	Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1135267770141 URL Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 1 - Data Dictionary | Alphabetical Data Dictionary.
Level	Facility/Agency, Population: National, Program: QIO
Setting	Hospital
Numerator Statement	AMI patients who received aspirin within 24 hours before or after hospital arrival.
Numerator Details	Time Window: 24 hours before hospital arrival through 24 hours after hospital arrival. Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-77 through 1-78. • Appendices | Appendix C - Medication Tables – pages Appendix C-3 through Appendix C-6. • Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-1-1 through AMI-1-5.
Denominator Statement	AMI patients (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of AMI: 410.00, 410.01, 410.10, 410.11, 410.20, 410.21, 410.30, 410.31, 410.40, 410.41, 410.50, 410.51, 410.60, 410.61, 410.70, 410.71, 410.80, 410.81, 410.90, 410.91).
Denominator Categories	Female; Male Greater than or equal to 18 years old
Denominator Details	Time Window: From hospital arrival to time of hospital discharge. ICD-9-CM Principal Diagnosis codes: 410.00: Anterolateral wall, acute myocardial infarction-episode of care unspecified 410.01: Anterolateral wall, acute myocardial infarction-initial episode 410.10: Other anterior wall, acute myocardial infarction-episode of care unspecified 410.11: Other anterior wall, acute myocardial infarction-initial episode 410.20: Inferolateral wall, acute myocardial infarction-episode of care unspecified 410.21: Inferolateral wall, acute myocardial infarction-initial episode

	0132 Aspirin at arrival for acute myocardial infarction (AMI)
	410.30: Inferoposterior wall, acute myocardial infarction-episode of care unspecified 410.31: Inferoposterior wall, acute myocardial infarction-initial episode 410.40: Other inferior wall, acute myocardial infarction-episode of care unspecified 410.41: Other inferior wall, acute myocardial infarction-initial episode 410.50: Other lateral wall, acute myocardial infarction-episode of care unspecified 410.51: Other lateral wall, acute myocardial infarction-initial episode 410.60: True posterior wall, acute myocardial infarction-episode of care unspecified 410.61: True posterior wall, acute myocardial infarction-initial episode 410.70: Subendocardial, acute myocardial infarction-episode of care unspecified 410.71: Subendocardial, acute myocardial infarction-initial episode 410.80: Other specified sites, acute myocardial infarction-episode of care unspecified 410.81: Other specified sites, acute myocardial infarction-initial episode 410.90: Unspecified site, acute myocardial infarction-episode of care unspecified 410.91: Unspecified site, acute myocardial infarction-initial episode
Exclusions	Exclusions: • <18 years of age • Patients who have a length of stay greater than 120 days • Patients enrolled in clinical trials • Discharged to another hospital on day of or day after arrival • Discharged on day of arrival • Expired on day of or day after arrival • Left against medical advice on day of or day after arrival • Patients with comfort measures only documented on day of or day after arrival • Patients with a documented reason for no aspirin on arrival.
Exclusion Details	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-20 through 1-21, 1-69 through 1-71, 1-90, 1-98 through 1-104, 1-117, 1-118 through 1-120, 1-204, and 1-324 through 1-326. • Appendices | Appendix C - Medication Tables PDF – pages Appendix C-3 through Appendix C-6 plus Appendix C-9, and Appendix H - Miscellaneous Tables – pages Appendix H-5. • Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5 plus AMI-1-1 through AMI-1-5.
Risk Adjustment	No risk adjustment necessary N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5 plus AMI-1-1 through AMI-1-5.

	0133 PCI mortality (risk-adjusted)©
Steward	American College of Cardiology, 2400 N Street, NW, Washington, DC 20037
Description	Risk adjusted PCI mortality rate.
Type	Outcome
Data Source	Registry data URL http://www.ncdr.com/WebNCDR/ELEMENTS.ASPX URL http://www.ncdr.com/WebNCDR/ELEMENTS.ASPX
Level	Facility/Agency
Setting	Hospital
Numerator Statement	Patients 18 years of age and older with a PCI procedure performed during admission who expired.
Numerator Details	Time Window: One year PCI=yes Coding instructions: indicate if the patient had a percutaneous coronary intervention (PCI) Selections: yes/no Supporting definitions: PCI: A percutaneous coronary intervention (PCI) is the placement of an angioplasty guide wire, balloon, or other device (e.g., stent, atherectomy, brachytherapy, or thrombectomy catheter) into a native coronary artery or coronary bypass graft for the purpose of mechanical coronary revascularization. Source: NCDR Discharge status = deceased Selections: Alive/deceased Coding instructions: Indicate whether the patient was alive or deceased at discharge.
Denominator Statement	Patients 18 years of age and older with a PCI procedure performed during admission.
Denominator Categories	Female; Male > 18 years of age
Denominator Details	Time Window: One year (quarterly to include previous four quarters of data)

	0133 PCI mortality (risk-adjusted)©
	PCI=yes Coding instructions: indicate if the patient had a percutaneous coronary intervention (PCI) Selections: yes/no Supporting definitions: PCI: A percutaneous coronary intervention (PCI) is the placement of an angioplasty guide wire, balloon, or other device (e.g., stent, atherectomy, brachytherapy, or thrombectomy catheter) into a native coronary artery or coronary bypass graft for the purpose of mechanical coronary revascularization. Source: NCDR Age: patients must be 18 years of age to be included in the registry.
Exclusions	1. NCDR Registry patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); 2. Data submissions that do not pass the data quality and completeness reports; 3. Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission); 4. Patient admissions with PCI who transferred to another facility on discharge; 5. Patient admissions with PCI who have more than two variables in the risk model that are missing.
Exclusion Details	1. PCI = yes 2. All data submissions must pass the data quality and completeness reports to be included. Note: If one or two variables are missing, the value is imputed for certain characteristics (see appendix 2 of the NCDR CathPCI Registry PCI Risk Adjusted Morality Model 2008 for more information). If the value is missing for more than two variables, the patient record is excluded. However, in our data quality program, all variables in the risk model have a high "inclusion" criteria. This means that, when a hospital submits data to us, they need to have a high level of completeness (around 99%) for those variables. If they are not able to meet the criteria in our data quality program, they do not receive risk adjusted mortality for the records they submitted for that quarter. 3. PCI = yes for more than one procedure during the same admission. 4. Discharge location = transferred to another facility
Risk Adjustment	Risk-adjustment devised specifically for this measure/condition Attachment Contemporary Mortality Risk Prediction for PCI (2).pdf
Stratification	N/A
Type Score	Weighted score/composite/scale better quality = lower score
Algorithm	

	0135 Evaluation of left ventricular systolic function (LVS)
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Baltimore, MD 21244-1850
Description	Percentage of heart failure patients with documentation in the hospital record that left ventricular systolic (LVS) function was evaluated before arrival, during hospitalization, or is planned for after discharge.
Type	Process
Data Source	Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1135267770141 URL Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 1 - Data Dictionary | Alphabetical Data Dictionary.
Level	Facility/Agency, Population: National, Program: QIO
Setting	Hospital
Numerator Statement	HF patients with documentation in the hospital record that LVS function was evaluated before arrival, during hospitalization, or is planned for after discharge.
Numerator Details	Time Window: From hospital arrival to time of hospital discharge. Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-254 through 1-256. • Section 2 - Measurement Information | Section 2.2 – Heart Failure (HF) – pages HF-2-1 through HF-2-5.
Denominator Statement	HF patients (ICD-9-CM principal diagnosis of HF: 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).
Denominator Categories	Female; Male Greater than or equal to 18 years old
Denominator Details	Time Window: From hospital arrival to time of hospital discharge. ICD-9-CM Principal Diagnosis codes: 402.01: Hypertensive heart disease, malignant, with heart failure 402.11: Hypertensive heart disease, benign, with heart failure 402.91: Hypertensive heart disease, unspecified, with heart failure 404.01: Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.03: Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage V or end stage renal disease

	0135 Evaluation of left ventricular systolic function (LVS)
	404.11: Hypertensive heart and chronic kidney disease, benign, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.13: Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage V or end stage renal disease 404.91: Hypertensive heart and chronic kidney disease, unspecified, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.93: Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage V or end stage renal disease 428.0: Congestive heart failure, unspecified 428.1: Left heart failure 428.20: Unspecified systolic heart failure 428.21: Acute systolic heart failure 428.22: Chronic systolic heart failure 428.23: Acute on chronic systolic heart failure 428.30: Unspecified diastolic heart failure 428.31: Acute diastolic heart failure 428.32: Chronic diastolic heart failure 428.33: Acute on chronic diastolic heart failure 428.40: Unspecified combined systolic and diastolic heart failure 428.41: Acute combined systolic and diastolic heart failure 428.42: hronic combined systolic and diastolic heart failure 428.43: Acute on chronic combined systolic and diastolic heart failure 428.9: Heart failure, unspecified.
Exclusions	Exclusions: • <18 years of age • Patients who have a length of stay greater than 120 days • Discharged to another hospital • Expired • Left against medical advice • Discharged to home for hospice care • Discharged to a health care facility for hospice care • Patients enrolled in clinical trials • Patients with comfort measures only documented • Reasons for no LVS function evaluation documented by a physician, advanced practice nurse, or physician assistant • Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code of LVAD or Heart Transplant: 33.6, 37.51, 37.52, 37.53, 37.54, 37.60, 37.62, 37.63, 37.65, 37.66, 37.68).
Exclusion Details	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-20 through 1-21, 1-90, 1-98 through 1-104, 1-117 through 1-120, 1-201, 1-204 through 1-205, and 1-254 through 1-256. • Section 2 - Measurement Information | Section 2.2 – Heart Failure (HF) – pages HF-5 plus HF-2-1 through HF-2-5
Risk Adjustment	No risk adjustment necessary N/A

	0135 Evaluation of left ventricular systolic function (LVS)
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 2 - Measurement Information | Section 2.2 – Heart Failure (HF) – pages HF-5 plus HF-2-4 through HF-2-5.

	0136 Heart Failure (HF): Detailed discharge instructions
Steward	Centers for Medicare & Medicaid Services
Description	Percentage of heart failure patients discharged home with written instructions or educational material given to patient or caregiver at discharge or during the hospital stay addressing all of the following: activity level, diet, discharge medications, follow-up appointment, weight monitoring, and what to do if symptoms worsen.
Type	Process
Data Source	Electronic Health/Medical Record, Paper medical record/flow-sheet Centers for Medicare & Medicaid Services (CMS) Abstraction & Reporting Tool (CART). Vendor tools also available. URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1135267770141 URL Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 1 - Data Dictionary | Alphabetical Data Dictionary
Level	Facility/Agency, Population : National, Program : QIO
Setting	Hospital
Numerator Statement	HF patients with documentation that they or their caregivers were given written discharge instructions or other educational material addressing all of the following: 1.activity level 2.diet 3.discharge medications 4.follow-up appointment 5.weight monitoring

	0136 Heart Failure (HF): Detailed discharge instructions
	6.what to do if symptoms worsen
Numerator Details	Time Window: From hospital arrival to time of hospital discharge Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: ·Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-121 through 1-122, 1-125 through 1-126, 1-129 through 1-130, 1-133 through 1-136, and 1-139 through 1-142. ·Section 2 - Measurement Information | Section 2.2 – Heart Failure (HF) – pages HF-1-1 through HF-1-7.
Denominator Statement	HF patients discharged home (ICD-9-CM principal diagnosis of HF: 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); and a discharge to home, home care, or court/law enforcement
Denominator Categories	Female; Male Greater than or equal to 18 years old
Denominator Details	Time Window: From hospital arrival to time of hospital discharge ICD-9-CM Principal Diagnosis codes: 402.01: Hypertensive heart disease, malignant, with heart failure 402.11: Hypertensive heart disease, benign, with heart failure 402.91: Hypertensive heart disease, unspecified, with heart failure 404.01: Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.03: Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage V or end stage renal disease 404.11: Hypertensive heart and chronic kidney disease, benign, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.13: Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage V or end stage renal disease 404.91: Hypertensive heart and chronic kidney disease, unspecified, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.93: Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage V or end stage renal disease 428.0: Congestive heart failure, unspecified 428.1: Left heart failure 428.20: Unspecified systolic heart failure 428.21: Acute systolic heart failure 428.22: Chronic systolic heart failure 428.23: Acute on chronic systolic heart failure 428.30: Unspecified diastolic heart failure 428.31: Acute diastolic heart failure 428.32: Chronic diastolic heart failure 428.33: Acute on chronic diastolic heart failure 428.40: Unspecified combined systolic and diastolic heart failure 428.41: Acute combined systolic and diastolic heart failure 428.42: Chronic combined systolic and diastolic heart failure

	0136 Heart Failure (HF): Detailed discharge instructions
	428.43: Acute on chronic combined systolic and diastolic heart failure 428.9: Heart failure, unspecified Discharge Disposition - Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: · Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-118 through 1-120.
Exclusions	Exclusions: •<18 years of age •Patients who have a length of stay greater than 120 days •Patients enrolled in clinical trials •Patients with comfort measures only documented •Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code of LVAD and Heart Transplant: 33.6, 37.51, 37.52, 37.53, 37.54, 37.60, 37.62, 37.63, 37.65, 37.66, 37.68)
Exclusion Details	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: ·Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-20 through 1-21, 1-90, 1-98 through 1-104, 1-117 through 1-120, 1-201, and 1-204 through 1-205. ·Section 2 - Measurement Information | Section 2.2 – Heart Failure (HF) – pages HF-5 plus HF-1-1 through HF-1-7
Risk Adjustment	no risk adjustment necessary N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 2 - Measurement Information | Section 2.2 – Heart Failure (HF) – pages HF-5 plus HF-1-4 through HF-1-7.

	0137 ACEI or ARB for left ventricular systolic dysfunction—acute myocardial infarction (AMI) patients
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Baltimore, MD 21244-1850
Description	Percentage of acute myocardial infarction (AMI) patients with left ventricular systolic dysfunction (LVSD) who are prescribed an ACEI or ARB at hospital 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
Data Source	Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1135267770141 URL Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 1 - Data Dictionary | Alphabetical Data Dictionary.
Level	Facility/Agency, Population: National, Program: QIO
Setting	Hospital
Numerator Statement	AMI patients who are prescribed an ACEI or ARB at hospital discharge.
Numerator Details	Time Window: From hospital arrival to time of hospital discharge. Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-18 through 1-19 plus pages 1-67 through 1-68. • Appendices | Appendix C - Medication Tables – pages Appendix C-6 through Appendix C-7 plus pages Appendix C-11 through Appendix C-12. • Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-3-1 through AMI-3-6.
Denominator Statement	AMI patients (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of AMI: 410.00, 410.01, 410.10, 410.11, 410.20, 410.21, 410.30, 410.31, 410.40, 410.41, 410.50, 410.51, 410.60, 410.61, 410.70, 410.71, 410.80, 410.81, 410.90, 410.91); with chart documentation of a left ventricular ejection fraction (LVEF) < 40% or a narrative description of left ventricular systolic (LVS) function consistent with moderate or severe systolic dysfunction.
Denominator Categories	Female; Male Greater than or equal to 18 years old

	0137 ACEI or ARB for left ventricular systolic dysfunction—acute myocardial infarction (AMI) patients
Denominator Details	Time Window: From hospital arrival to time of hospital discharge ICD-9-CM Principal Diagnosis codes: 410.00: Anterolateral wall, acute myocardial infarction-episode of care unspecified 410.01: Anterolateral wall, acute myocardial infarction-initial episode 410.10: Other anterior wall, acute myocardial infarction-episode of care unspecified 410.11: Other anterior wall, acute myocardial infarction-initial episode 410.20: Inferolateral wall, acute myocardial infarction-episode of care unspecified 410.21: Inferolateral wall, acute myocardial infarction-initial episode 410.30: Inferoposterior wall, acute myocardial infarction-episode of care unspecified 410.31: Inferoposterior wall, acute myocardial infarction-initial episode 410.40: Other inferior wall, acute myocardial infarction-episode of care unspecified 410.41: Other inferior wall, acute myocardial infarction-initial episode 410.50: Other lateral wall, acute myocardial infarction-episode of care unspecified 410.51: Other lateral wall, acute myocardial infarction-initial episode 410.60: True posterior wall, acute myocardial infarction-episode of care unspecified 410.61: True posterior wall, acute myocardial infarction-initial episode 410.70: Subendocardial, acute myocardial infarction-episode of care unspecified 410.71: Subendocardial, acute myocardial infarction-initial episode 410.80: Other specified sites, acute myocardial infarction-episode of care unspecified 410.81: Other specified sites, acute myocardial infarction-initial episode 410.90: Unspecified site, acute myocardial infarction-episode of care unspecified 410.91: Unspecified site, acute myocardial infarction-initial episode. LVSD - Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-257 through 1-260.
Exclusions	Exclusions: • <18 years of age • Patients who have a length of stay greater than 120 days • Discharged to another hospital • Expired • Left against medical advice • Discharged to home for hospice care • Discharged to a health care facility for hospice care • Patients with comfort measures only documented • Patients enrolled in clinical trials • Patients with a documented reason for no ACEI and no ARB at discharge.
Exclusion Details	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-20 through 1-21, 1-90, 1-98 through 1-104, 1-117 through 1-120, 1-204, 1-257 through 1-260, and 1-315 through 1-320. • Appendices | Appendix C - Medication Tables PDF – pages Appendix C-6 through Appendix C-7 plus pages Appendix C-11 through Appendix C-12, and Appendix H - Miscellaneous Tables – page Appendix H-5. • Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5 plus AMI-3-1 through AMI-3-6.

	0137 ACEI or ARB for left ventricular systolic dysfunction—acute myocardial infarction (AMI) patients
Risk Adjustment	No risk adjustment necessary N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5 plus AMI-3-1 through AMI-3-6.

	0142 Aspirin prescribed at discharge for AMI
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Baltimore, MD 21244-1850
Description	Percentage of acute myocardial infarction (AMI) patients who are prescribed aspirin at hospital discharge.
Type	Process
Data Source	Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1135267770141 URL Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 1 - Data Dictionary | Alphabetical Data Dictionary.
Level	Facility/Agency, Population: National, Program: QIO
Setting	Hospital
Numerator Statement	AMI patients who are prescribed aspirin at hospital discharge
Numerator Details	Time Window: From hospital arrival to time of hospital discharge. Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-75 through 1-76. • Appendices | Appendix C - Medication Tables – pages Appendix C-3 through Appendix C-6. • Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-2-1 through AMI-2-5.
Denominator Statement	AMI patients (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of AMI: 410.00, 410.01, 410.10, 410.11, 410.20, 410.21, 410.30, 410.31, 410.40, 410.41, 410.50, 410.51, 410.60, 410.61, 410.70, 410.71, 410.80, 410.81, 410.90, 410.91).
Denominator Categories	Female; Male Greater than or equal to 18 years old
Denominator Details	Time Window: From hospital arrival to time of hospital discharge. ICD-9-CM Principal Diagnosis codes: 410.00: Anterolateral wall, acute myocardial infarction-episode of care unspecified 410.01: Anterolateral wall, acute myocardial infarction-initial episode 410.10: Other anterior wall, acute myocardial infarction-episode of care unspecified 410.11: Other anterior wall, acute myocardial infarction-initial episode 410.20: Inferolateral wall, acute myocardial infarction-episode of care unspecified 410.21: Inferolateral wall, acute myocardial infarction-initial episode 410.30: Inferoposterior wall, acute myocardial infarction-episode of care unspecified 410.31: Inferoposterior wall, acute myocardial infarction-initial episode

	0142 Aspirin prescribed at discharge for AMI
	410.40: Other inferior wall, acute myocardial infarction-episode of care unspecified 410.41: Other inferior wall, acute myocardial infarction-initial episode 410.50: Other lateral wall, acute myocardial infarction-episode of care unspecified 410.51: Other lateral wall, acute myocardial infarction-initial episode 410.60: True posterior wall, acute myocardial infarction-episode of care unspecified 410.61: True posterior wall, acute myocardial infarction-initial episode 410.70: Subendocardial, acute myocardial infarction-episode of care unspecified 410.71: Subendocardial, acute myocardial infarction-initial episode 410.80: Other specified sites, acute myocardial infarction-episode of care unspecified 410.81: Other specified sites, acute myocardial infarction-initial episode 410.90: Unspecified site, acute myocardial infarction-episode of care unspecified 410.91: Unspecified site, acute myocardial infarction-initial episode.
Exclusions	Exclusions: • <18 years of age • Patients who have a length of stay greater than 120 days • Patients enrolled in clinical trials • Discharged to another hospital • Expired • Left against medical advice • Discharged to home for hospice care • Discharged to a health care facility for hospice care • Patients with comfort measures only documented • Patients with a documented reason for no aspirin at discharge.
Exclusion Details	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-20 through 1-21, 1-69 through 1-71, 1-90, 1-98 through 1-104, 1-117, 1-118 through 1-120, 1-204, and 1-321 through 1-323. • Appendices | Appendix C - Medication Tables PDF – pages Appendix C-3 through Appendix C-6 plus Appendix C-9, and Appendix H - Miscellaneous Tables – page Appendix H-5. • Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5 plus AMI-2-1 through AMI-2-5.
Risk Adjustment	No risk adjustment necessary
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5 plus AMI-2-1 through AMI-2-5.

	0160 Beta-blocker prescribed at discharge for AMI
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Baltimore, MD 21244-1850
Description	Percentage of acute myocardial infarction (AMI) patients who are prescribed a beta-blocker at hospital discharge.
Type	Process
Data Source	Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1135267770141 URL Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 1 - Data Dictionary | Alphabetical Data Dictionary.
Level	Facility/Agency, Population: National, Program: QIO
Setting	Hospital
Numerator Statement	AMI patients who are prescribed a beta-blocker at hospital discharge.
Numerator Details	Time Window: From hospital arrival to time of hospital discharge. • Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-88 through 1-89. • Appendices | Appendix C - Medication Tables – pages Appendix C-7 through Appendix C-9. • Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5-1 through AMI-5-5.
Denominator Statement	AMI patients (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of AMI: 410.00, 410.01, 410.10, 410.11, 410.20, 410.21, 410.30, 410.31, 410.40, 410.41, 410.50, 410.51, 410.60, 410.61, 410.70, 410.71, 410.80, 410.81, 410.90, 410.91)
Denominator Categories	Female; Male Greater than or equal to 18 years old
Denominator Details	Time Window: From hospital arrival to time of hospital discharge. ICD-9-CM Principal Diagnosis codes: 410.00: Anterolateral wall, acute myocardial infarction-episode of care unspecified 410.01: Anterolateral wall, acute myocardial infarction-initial episode 410.10: Other anterior wall, acute myocardial infarction-episode of care unspecified 410.11: Other anterior wall, acute myocardial infarction-initial episode 410.20: Inferolateral wall, acute myocardial infarction-episode of care unspecified 410.21: Inferolateral wall, acute myocardial infarction-initial episode 410.30: Inferoposterior wall, acute myocardial infarction-episode of care unspecified 410.31: Inferoposterior wall, acute myocardial infarction-initial episode

	0160 Beta-blocker prescribed at discharge for AMI
	410.40: Other inferior wall, acute myocardial infarction-episode of care unspecified 410.41: Other inferior wall, acute myocardial infarction-initial episode 410.50: Other lateral wall, acute myocardial infarction-episode of care unspecified 410.51: Other lateral wall, acute myocardial infarction-initial episode 410.60: True posterior wall, acute myocardial infarction-episode of care unspecified 410.61: True posterior wall, acute myocardial infarction-initial episode 410.70: Subendocardial, acute myocardial infarction-episode of care unspecified 410.71: Subendocardial, acute myocardial infarction-initial episode 410.80: Other specified sites, acute myocardial infarction-episode of care unspecified 410.81: Other specified sites, acute myocardial infarction-initial episode 410.90: Unspecified site, acute myocardial infarction-episode of care unspecified 410.91: Unspecified site, acute myocardial infarction-initial episode
Exclusions	Exclusions: • <18 years of age • Patients who have a length of stay greater than 120 days • Patients enrolled in clinical trials • Discharged to another hospital • Expired • Left against medical advice • Discharged to home for hospice care • Discharged to a health care facility for hospice care • Patients with comfort measures only documented • Patients with a documented reason for no beta-blocker at discharge.
Exclusion Details	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-20 through 1-21, 1-90, 1-98 through 1-104, 1-117, 1-118 through 1-120, 1-204, and 1-327 through 1-330. • Appendices | Appendix C - Medication Tables PDF – pages Appendix C-7 through Appendix C-9, and Appendix H - Miscellaneous Tables – page Appendix H-5. • Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5 plus AMI-5-1 through AMI-5-5.
Risk Adjustment	No risk adjustment necessary N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5 plus AMI-5-1 through AMI-5-5.
	0162 ACEI or ARB for left ventricular systolic dysfunction—heart failure (HF) patients

	0160 Beta-blocker prescribed at discharge for AMI
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Baltimore, MD 21244-1850
Description	Percentage of heart failure (HF) patients with left ventricular systolic dysfunction (LVSD) who are prescribed an ACEI or ARB at hospital 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
Data Source	Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1135267770141 URL Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 1 - Data Dictionary | Alphabetical Data Dictionary.
Level	Facility/Agency, Population: National, Program: QIO
Setting	Hospital
Numerator Statement	HF patients who are prescribed an ACEI or ARB at hospital discharge.
Numerator Details	Time Window: From hospital arrival to time of hospital discharge Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-18 through 1-19 plus pages 1-67 through 1-68. • Appendices | Appendix C - Medication Tables – pages Appendix C-6 through Appendix C-7 plus pages Appendix C-11 through Appendix C-12. • Section 2 - Measurement Information | Section 2.2 – Heart Failure (HF) – pages HF-3-1 through HF-3-5.
Denominator Statement	HF patients (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of HF: 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); with chart documentation of a left ventricular ejection fraction (LVEF) < 40% or a narrative description of left ventricular systolic (LVS) function consistent with moderate or severe systolic dysfunction.
Denominator Categories	Female; Male Greater than or equal to 18 years old
Denominator Details	Time Window: From hospital arrival to time of hospital discharge. ICD-9-CM Principal Diagnosis codes:

	0160 Beta-blocker prescribed at discharge for AMI
	402.01: Hypertensive heart disease, malignant, with heart failure 402.11: Hypertensive heart disease, benign, with heart failure 402.91: Hypertensive heart disease, unspecified, with heart failure 404.01: Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.03: Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage V or end stage renal disease 404.11: Hypertensive heart and chronic kidney disease, benign, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.13: Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage V or end stage renal disease 404.91: Hypertensive heart and chronic kidney disease, unspecified, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.93: Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage V or end stage renal disease 428.0: Congestive heart failure, unspecified 428.1: Left heart failure 428.20: Unspecified systolic heart failure 428.21: Acute systolic heart failure 428.22: Chronic systolic heart failure 428.23: Acute on chronic systolic heart failure 428.30: Unspecified diastolic heart failure 428.31: Acute diastolic heart failure 428.32: Chronic diastolic heart failure 428.33: Acute on chronic diastolic heart failure 428.40: Unspecified combined systolic and diastolic heart failure 428.41: Acute combined systolic and diastolic heart failure 428.42: Chronic combined systolic and diastolic heart failure 428.43: Acute on chronic combined systolic and diastolic heart failure 428.9: Heart failure, unspecified LVSD - Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-257 through 1-260.
Exclusions	Exclusions: • Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code of LVAD or Heart Transplant: 33.6, 37.51, 37.52, 37.53, 37.54, 37.60, 37.62, 37.63, 37.65, 37.66, 37.68) • <18 years of age • Patients who have a length of stay greater than 120 days • Discharged to another hospital • Expired • Left against medical advice • Discharged to home for hospice care • Discharged to a health care facility for hospice care • Patients enrolled in clinical trials • Patients with comfort measures only documented • Patients with a documented reason for no ACEI and no ARB at discharge.
Exclusion	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228

	0160 Beta-blocker prescribed at discharge for AMI
Details	760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-20 through 1-21, 1-90, 1-98 through 1-104, 1-117 through 1-120, 1-201, 1-204 through 1-205, 1-257 through 1-260, and 1-315 through 1-320. • Appendices | Appendix C - Medication Tables PDF – pages Appendix C-6 through Appendix C-7 plus pages Appendix C-11 through Appendix C-12, and Appendix H - Miscellaneous Tables – page Appendix H-5. • Section 2 - Measurement Information | Section 2.2 – Heart Failure (HF) – pages HF-5 plus HF-3-1 through HF-3-5
Risk Adjustment	No risk adjustment necessary N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228 760129036: Section 2 - Measurement Information | Section 2.2 – Heart Failure (HF) – pages HF-5 plus HF-3-4 through HF-3-5.

	0163 Primary PCI received within 90 minutes of hospital arrival
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Baltimore, MD 21244-1850
Description	Percentage of acute myocardial infarction (AMI) patients with ST-segment elevation or LBBB on the ECG closest to arrival time receiving primary percutaneous coronary intervention (PCI) during the hospital stay with a time from hospital arrival to PCI of 90 minutes or less.
Type	Process
Data Source	Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1135267770141 URL Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 1 - Data Dictionary | Alphabetical Data Dictionary.
Level	Facility/Agency, Population: National, Program: QIO
Setting	Hospital
Numerator Statement	AMI patients whose time from hospital arrival to primary Percutaneous Coronary Intervention (PCI) is 90 minutes or less.
Numerator Details	Time Window: From hospital arrival through 90 minutes after hospital arrival. Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-69 through 1-74 and 1-172 through 1-176. • Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-8a-1 through AMI-8a-7.
Denominator Statement	Principal diagnosis of AMI (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of AMI: 410.00, 410.01, 410.10, 410.11, 410.20, 410.21, 410.30, 410.31, 410.40, 410.41, 410.50, 410.51, 410.60, 410.61, 410.70, 410.71, 410.80, 410.81, 410.90, 410.91); and PCI procedure (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal or other procedure code for PCI: 00.66); and ST-segment elevation or LBBB on the ECG performed closest to hospital arrival; and PCI performed within 24 hours after hospital arrival.
Denominator Categories	Female; Male Greater than or equal to 18 years old
Denominator Details	Time Window: From hospital arrival through 24 hours after hospital arrival. ICD-9-CM Principal Diagnosis codes: 410.00: Anterolateral wall, acute myocardial infarction-episode of care unspecified 410.01: Anterolateral wall, acute myocardial infarction-initial episode

	0163 Primary PCI received within 90 minutes of hospital arrival
	410.10: Other anterior wall, acute myocardial infarction-episode of care unspecified 410.11: Other anterior wall, acute myocardial infarction-initial episode 410.20: Inferolateral wall, acute myocardial infarction-episode of care unspecified 410.21: Inferolateral wall, acute myocardial infarction-initial episode 410.30: Inferoposterior wall, acute myocardial infarction-episode of care unspecified 410.31: Inferoposterior wall, acute myocardial infarction-initial episode 410.40: Other inferior wall, acute myocardial infarction-episode of care unspecified 410.41: Other inferior wall, acute myocardial infarction-initial episode 410.50: Other lateral wall, acute myocardial infarction-episode of care unspecified 410.51: Other lateral wall, acute myocardial infarction-initial episode 410.60: True posterior wall, acute myocardial infarction-episode of care unspecified 410.61: True posterior wall, acute myocardial infarction-initial episode 410.70: Subendocardial, acute myocardial infarction-episode of care unspecified 410.71: Subendocardial, acute myocardial infarction-initial episode 410.80: Other specified sites, acute myocardial infarction-episode of care unspecified 410.81: Other specified sites, acute myocardial infarction-initial episode 410.90: Unspecified site, acute myocardial infarction-episode of care unspecified 410.91: Unspecified site, acute myocardial infarction-initial episode ICD-9-CM Principal or Other Procedure code: 00.66: Percutaneous transluminal coronary angioplasty [PTCA] or coronary atherectomy First PCI Date, First PCI Time, and Initial ECG Interpretation—Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-172 through 1-176 and 1-228 through 1-231.
Exclusions	Exclusions: • <18 years of age • Patients who have a length of stay greater than 120 days • Patients enrolled in clinical trials • Patients received as a transfer from an inpatient or outpatient department of another hospital • Patients received as a transfer from the emergency/observation department of another hospital • Patients received as a transfer from an ambulatory surgery center • Patient administered fibrinolytic agent prior to PCI • PCI described as non-primary by physician, advanced practice nurse, or physician assistant • Patients who did not receive PCI within 90 minutes and had a reason for delay documented by a physician, advanced practice nurse, or physician assistant (e.g., social, religious, initial concern or refusal, cardiopulmonary arrest, balloon pump insertion, respiratory failure requiring intubation).
Exclusion Details	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-20 through 1-21, 1-69 through 1-74, 1-90, 1-98 through 1-100, 1-117, 1-166, 1-172 through 1-176, 1-201, 1-204 through 1-205, 1-228 through 1-231, 1-266 through 1-267, 1-310 through 1-312, and 1-392 through 1-393. • Appendices | Appendix C - Medication Tables PDF – page Appendix C-9. • Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5 plus AMI-8a-1 through AMI-8a-7.
Risk	No risk adjustment necessary

	0163 Primary PCI received within 90 minutes of hospital arrival
Adjustment	N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5 plus AMI-8a-1 through AMI-8a-7.

	0164 Fibrinolytic therapy received within 30 minutes of hospital arrival
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Baltimore, MD 21244-1850
Description	Percentage of acute myocardial infarction (AMI) patients with ST-segment elevation or LBBB on the ECG closest to arrival time receiving fibrinolytic therapy during the hospital stay and having a time from hospital arrival to fibrinolysis of 30 minutes or less.
Type	Process
Data Source	Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1135267770141 URL Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 1 - Data Dictionary | Alphabetical Data Dictionary.
Level	Facility/Agency, Population: National, Program: QIO
Setting	Hospital
Numerator Statement	AMI patients whose time from hospital arrival to fibrinolysis is 30 minutes or less.
Numerator Details	Time Window: From hospital arrival through 30 minutes after hospital arrival. Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-69 through 1-74 and 1-167 through 1-170. • Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-7a-1 through AMI-7a-6.
Denominator Statement	Principal diagnosis of AMI (International Classification of Diseases, 9th revision, Clinical Modification [ICD-9-CM] principal diagnosis code of AMI: 410.00, 410.01, 410.10, 410.11, 410.20, 410.21, 410.30, 410.31, 410.40, 410.41, 410.50, 410.51, 410.60, 410.61, 410.70, 410.71, 410.80, 410.81, 410.90, 410.91); and ST-segment elevation or LBBB on the ECG performed closest to hospital arrival; and fibrinolytic therapy within 6 hours after hospital arrival; and fibrinolytic therapy is primary reperfusion therapy.
Denominator Categories	Female; Male Greater than or equal to 18 years old
Denominator Details	Time Window: From hospital arrival through 6 hours after hospital arrival. ICD-9-CM Principal Diagnosis codes: 410.00: Anterolateral wall, acute myocardial infarction-episode of care unspecified

	0164 Fibrinolytic therapy received within 30 minutes of hospital arrival
	410.01: Anterolateral wall, acute myocardial infarction-initial episode 410.10: Other anterior wall, acute myocardial infarction-episode of care unspecified 410.11: Other anterior wall, acute myocardial infarction-initial episode 410.20: Inferolateral wall, acute myocardial infarction-episode of care unspecified 410.21: Inferolateral wall, acute myocardial infarction-initial episode 410.30: Inferoposterior wall, acute myocardial infarction-episode of care unspecified 410.31: Inferoposterior wall, acute myocardial infarction-initial episode 410.40: Other inferior wall, acute myocardial infarction-episode of care unspecified 410.41: Other inferior wall, acute myocardial infarction-initial episode 410.50: Other lateral wall, acute myocardial infarction-episode of care unspecified 410.51: Other lateral wall, acute myocardial infarction-initial episode 410.60: True posterior wall, acute myocardial infarction-episode of care unspecified 410.61: True posterior wall, acute myocardial infarction-initial episode 410.70: Subendocardial, acute myocardial infarction-episode of care unspecified 410.71: Subendocardial, acute myocardial infarction-initial episode 410.80: Other specified sites, acute myocardial infarction-episode of care unspecified 410.81: Other specified sites, acute myocardial infarction-initial episode 410.90: Unspecified site, acute myocardial infarction-episode of care unspecified 410.91: Unspecified site, acute myocardial infarction-initial episode Fibrinolytic Administration, Fibrinolytic Administration Date, Fibrinolytic Administration Time, and Initial ECG Interpretation - Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-166 through 1-170 and 1-228 through 1-231.
Exclusions	Exclusions: • <18 years of age • Patients who have a length of stay greater than 120 days • Patients enrolled in clinical trials • Patients received as a transfer from an inpatient or outpatient department of another hospital • Patients received as a transfer from the emergency/observation department of another hospital • Patients received as a transfer from an ambulatory surgery center • Patients who did not receive fibrinolytic therapy within 30 minutes and had a reason for delay documented by a physician, advanced practice nurse, or physician assistant (e.g., social, religious, initial concern or refusal, cardiopulmonary arrest, balloon pump insertion, respiratory failure requiring intubation).
Exclusion Details	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: • Section 1 - Data Dictionary | Alphabetical Data Dictionary – pages 1-20 through 1-21, 1-69 through 1-74, 1-90, 1-98 through 1-100, 1-117, 1-166 through 1-170, 1-204, 1-228 through 1-231, 1-307 through 1-309, and 1-392 through 1-393. • Appendices | Appendix C - Medication Tables PDF – page Appendix C-9. • Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5 plus AMI-7a-1 through AMI-7a-6.
Risk Adjustment	No risk adjustment necessary N/A

	0164 Fibrinolytic therapy received within 30 minutes of hospital arrival
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Refer to http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228760129036: Section 2 - Measurement Information | Section 2.1 - Acute Myocardial Infarction (AMI) – pages AMI-5 plus AMI-7a-1 through AMI-7a-6.

	0229 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following heart failure (HF) hospitalization for patients 18 and older
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-02-01, Baltimore, MD 21244-9045
Description	The measure estimates a hospital-level risk-standardized mortality rate (RSMR), defined as death from any cause within 30 days after the index admission date, for patients 18 and older discharged from the hospital with a principal diagnosis of HF.
Type	Outcome
Data Source	administrative data; other http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1219069855841
Level	Facility/Agency
Setting	Hospital/Acute Care Facility
Numerator Statement	This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome. 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 discharged from the hospital with a principal diagnosis of HF.
Numerator Details	Time Window: Patients who die within 30 days of the index admission date. Measure includes deaths from any cause within 30 days from admission date of index hospitalization.
Denominator Statement	Note: This outcome measure does not have a traditional numerator and denominator like a core process measure; thus, we are using this field to define the patient cohort and to define exclusions to the patient cohort. 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. While the measure can be applied to populations aged 18 years or older, nationally data are often only available for patients aged 65 years or older. We have explicitly tested the measure in both age groups. The cohort includes admissions for patients discharged from the hospital with a principal diagnosis of HF (ICD-9-CM codes 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, and 428.xx) and with a complete claims history for the 12 months prior to admission. Patients who are transferred from one acute care facility to another must have a principal discharge diagnosis of HF at both hospitals. The initial hospital for a

	0229 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following heart failure (HF) hospitalization for patients 18 and older
	transferred patient is designated as the responsible institution for the episode. If a patient has more than one HF admission in a year, one hospitalization is randomly selected for inclusion in the measure.
Denominator Categories	Female; Male The target population is age 18 years or older
Denominator Details	Time Window: This measure was developed with 12 months of data. Currently the measure is publicly reported with three years of index hospitalizations. The denominator includes patients aged 18 and older admitted to non-federal acute care hospitals for an HF defined by a principal discharge diagnosis of (ICD-9-CM codes 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, and 428.xx) and with a complete claims history for the 12 months prior to admission. ICD-9-CM codes that define the patient cohort: 402.01 Hypertensive heart disease, malignant, with heart failure 402.11 Hypertensive heart disease, benign, with heart failure 402.91 Hypertensive heart disease, unspecified, with heart failure 404.01 Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.03 Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage V or end stage renal disease 404.11 Hypertensive heart and chronic kidney disease, benign, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.13 Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage V or end stage renal disease 404.91 Hypertensive heart and chronic kidney disease, unspecified, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.93 Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage V or end stage renal disease 428.0 Congestive heart failure, unspecified 428.1 Left heart failure 428.20 Unspecified systolic heart failure 428.21 Acute systolic heart failure 428.22 Chronic systolic heart failure 428.23 Acute on chronic systolic heart failure 428.30 Unspecified diastolic heart failure 428.31 Acute diastolic heart failure 428.32 Chronic diastolic heart failure 428.33 Acute on chronic diastolic heart failure 428.40 Unspecified combined systolic and diastolic heart failure 428.41 Acute combined systolic and diastolic heart failure 428.42 Chronic combined systolic and diastolic heart failure 428.43 Acute on chronic combined systolic and diastolic heart failure 428.9 Heart Failure, unspecified

	0229 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following heart failure (HF) hospitalization for patients 18 and older
Exclusions	For all cohorts, the measure excludes admissions for patients: • who were discharged on the day of admission or the following day and did not die or get transferred (because it is less likely they had a significant HF diagnosis); • who were transferred from another acute care hospital (because the death is attributed to the hospital where the patient was initially admitted); • with inconsistent or unknown mortality status or other unreliable data (e.g. date of death precedes admission date); • who were discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge); • that were not the first hospitalization in the 30 days prior to a patient's death. We use this criteria to prevent attribution of a death to two admissions. For Medicare FFS patients, the measure additionally excludes admissions for patients: • enrolled in the Medicare Hospice program any time in the 12 months prior to the index hospitalization including the first day of the index admission (since it is likely these patients are continuing to seek comfort measures only). Although this exclusion currently applies to Medicare FFS patients, it could be expanded to include all payer data if an acceptable method for identifying hospice patients outside of Medicare becomes available.
Exclusion Details	See "Denominator Exclusions" section.
Risk Adjustment	Risk-adjustment devised specifically for this measure/condition URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1163010421830
Stratification	Results of this measure will not be stratified.
Type Score	Rate/proportion better quality = lower score
Algorithm	The RSMR is calculated as the ratio of the number of "adjusted actual" deaths (also known as "predicted") to the number of "expected" deaths at a given hospital, multiplied by the national unadjusted mortality rate. For each hospital, the "numerator" of the ratio 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" 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 better quality and a higher ratio indicates higher-than-expected mortality or worse quality The "adjusted actual" deaths (the numerator)is calculated by regressing the risk factors and the hospital-specific intercept on the risk of mortality, multiplying the estimated regression coefficients by the patient characteristics in the hospital, transforming, and then summing over all patients attributed to the hospital to get a value. The

	0229 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following heart failure (HF) hospitalization for patients 18 and older
	expected number of deaths (the denominator) is obtained by regressing the risk factors and a common intercept on the mortality outcome using all hospitals in our sample, multiplying the subsequent estimated regression coefficients by the patient characteristics observed in the hospital, transforming, and then summing over all patients in the hospital to get a value. To assess hospital performance in any reporting period, the model coefficients are re-estimated using the years of data in that period.

	0230 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older
Steward	Centers for Medicare & Medicaid Services (CMS), 7500 Security Boulevard, Mail Stop S3-02-01, Baltimore, MD 21244-9045
Description	The measure estimates a hospital-level risk-standardized mortality rate (RSMR), defined as death from any cause within 30 days after the index admission date, for patients 18 and older discharged from the hospital with a principal diagnosis of AMI.
Type	Outcome
Data Source	Electronic administrative data/claims URL Condition http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1219069855841
Level	Facility/Agency
Setting	Hospital/Acute Care Facility
Numerator Statement	This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome. 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.
Numerator Details	Time Window: Patients who die within 30 days of the index admission date. Measure includes deaths from any cause within 30 days from admission date of index hospitalization.
Denominator Statement	Note: This outcome measure does not have a traditional numerator and denominator like a core process measure; thus, we are using this field to define the patient cohort. 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. While the measure can be applied to populations aged 18 years or older, national data are often only available for patients aged 65 years or older. We have explicitly tested the measure in both age groups. The cohorts include admissions for patients discharged from the hospital with a principal diagnosis of AMI (ICD-9-CM codes 410.xx except for 410.x2) and with a complete claims history for the 12 months prior to admission. Patients who are transferred from one acute care facility to another must have a principal discharge diagnosis of AMI at both hospitals. The initial hospital for a transferred patient is designated as the responsible institution for the episode. If a patient has more than one AMI admission in a year, one hospitalization is randomly selected for inclusion in

	0230 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older
	the measure.
Denominator Categories	Female; Male The target population is age 18 years or older
Denominator Details	Time Window: This measure was developed with 12 months of data. Currently the measure is publicly reported with three years of index hospitalizations. The denominator includes patients aged 18 and older admitted to non-federal acute care hospitals for an AMI defined by a principal discharge diagnosis of ICD-9-CM code 410.xx, excluding those with 410.x2 (AMI, subsequent episode of care), and with a complete claims history for the 12 months prior to admission. ICD-9-CM codes that define the patient cohort: 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 Note: We do not include 410.x2 (AMI, subsequent episode of care
Exclusions	For all cohorts, the measure excludes admissions for patients: • who were discharged on the day of admission or the following day and did not die or get transferred (because it is less likely they had a significant AMI). • who were transferred from another acute care hospital (because the death is attributed to the hospital where the patient was initially admitted). • with inconsistent or unknown mortality status or other unreliable data (e.g. date of death precedes admission date). • who were discharged alive and against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge).

	0230 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following acute myocardial infarction (AMI) hospitalization for patients 18 and older
	• that were not the first hospitalization in the 30 days prior to a patient's death. We use this criterion to prevent attribution of a death to two admissions. For Medicare FFS patients, the measure additionally excludes admissions for patients: • enrolled in the Medicare Hospice program any time in the 12 months prior to the index hospitalization including the first day of the index admission (since it is likely these patients are continuing to seek comfort measures only). Although this exclusion currently applies to Medicare FFS patients, it could be expanded to include all payer data if an acceptable method for identifying hospice patients outside of Medicare becomes available.
Exclusion Details	See "Denominator Exclusions" section.
Risk Adjustment	Risk-adjustment devised specifically for this measure/condition. URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1163010421830
Stratification	Results of this measure will not be stratified.
Type Score	Rate/proportion better quality = lower score
Algorithm	The RSMR is calculated as the ratio of the number of "adjusted actual" deaths (also known as "predicted") to the number of "expected" deaths at a given hospital, multiplied by the national unadjusted mortality rate. For each hospital, the "numerator" of the ratio 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" 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 better quality and a higher ratio indicates higher-than-expected mortality or worse quality. The "adjusted actual" deaths (the numerator) is calculated by regressing the risk factors and the hospital-specific intercept on the risk of mortality, multiplying the estimated regression coefficients by the patient characteristics in the hospital, transforming, and then summing over all patients attributed to the hospital to get a value. The expected number of deaths (the denominator) is obtained by regressing the risk factors and a common intercept on the mortality outcome using all hospitals in our sample, multiplying the subsequent estimated regression coefficients by the patient characteristics observed in the hospital, transforming, and then summing over all patients in the hospital to get a value. To assess hospital performance in any reporting period, the model coefficients are re-estimated using the years of data in that period.

	0277 Congestive heart failure admission rate (PQI 8)
Steward	Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850
Description	Percent of county population with an admissions for CHF.
Type	Outcome
Data Source	Electronic administrative data/claims URL http://www.qualityindicators.ahrq.gov/software.htm http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf
Level	Population: Counties or cities, Population: states
Setting	Ambulatory Care: Office
Numerator Statement	All discharges of age 18 years and older with ICD-9-CM principal diagnosis code for CHF.
Numerator Details	Time Window: Time period is user defined. Users of the measure typically use a 12 month time period. All discharges of age 18 years and older with ICD-9-CM principal diagnosis code for CHF. Include ICD-9-CM diagnosis codes: 39891 RHEUMATIC HEART FAILURE 4280 CONGESTIVE HEART FAILURE 4281 LEFT HEART FAILURE 42820 SYSTOLIC HRT FAILURE NOS OCT02- 42821 AC SYSTOLIC HRT FAILURE OCT02- 42822 CHR SYSTOLIC HRT FAILURE OCT02- 42823 AC ON CHR SYST HRT FAIL OCT02- 42830 DIASTOLC HRT FAILURE NOS OCT02- 42831 AC DIASTOLIC HRT FAILURE OCT02- 42832 CHR DIASTOLIC HRT FAIL OCT02- 42833 AC ON CHR DIAST HRT FAIL OCT02- 42840 SYST/DIAST HRT FAIL NOS OCT02- 42841 AC SYST/DIASTOL HRT FAIL OCT02- 42842 CHR SYST/DIASTL HRT FAIL OCT02- 42843 AC/CHR SYST/DIA HRT FAIL OCT02- 4289 HEART FAILURE NOS Include ICD-9-CM diagnosis codes ONLY for discharges before 2002Q3 (ending September 30, 2002): 40201 MAL HYPERT HRT DIS W CHF 40211 BENIGN HYP HRT DIS W CHF 40291 HYPERTEN HEART DIS W CHF 40401 MAL HYPER HRT/REN W CHF 40403 MAL HYP HRT/REN W CHF/RF 40411 BEN HYPER HRT/REN W CHF 40413 BEN HYP HRT/REN W CHF/RF 40491 HYPER HRT/REN NOS W CHF 40493 HYP HT/REN NOS W CHF/RF Exclude cases:

	0277 Congestive heart failure admission rate (PQI 8)
	• transfer from a hospital (different facility) • transfer from a skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF) • transfer from another health care facility • MDC 14 (pregnancy, childbirth, and puerperium) • with a cardiac procedure code. ICD-9-CM Cardiac procedure codes: 0050 IMPL CRT PACEMAKER SYS OCT02- 0051 IMPL CRT DEFIBRILLAT OCT02- 0052 IMP/REP LEAD LF VEN SYS OCT02- 0053 IMP/REP CRT PACEMKR GEN OCT02- 0054 IMP/REP CRT DEFIB GENAT OCT02- 0056 INS/REP IMPL SENSOR LEAD OCT06- 0057 IMP/REP SUBCUE CARD DEV OCT06- 0066 PTCA OCT06- 1751 IMPLANTATION OF RECHARGEABLE CARDIAC CONTRACTILITY MODULATION [CCM], TOTAL SYSTEM OCT09- 1752 IMPLANTATION OR REPLACEMENT OF CARDIAC CONTRACTILITY MODULATION [CCM] RECHARGEABLE PULSE GENERATOR ONLY OCT09- 3500 CLOSED VALVOTOMY NOS 3501 CLOSED AORTIC VALVOTOMY 3502 CLOSED MITRAL VALVOTOMY 3503 CLOSED PULMON VALVOTOMY 3504 CLOSED TRICUSP VALVOTOMY 3510 OPEN VALVULOPLASTY NOS 3511 OPN AORTIC VALVULOPLASTY 3512 OPN MITRAL VALVULOPLASTY 3513 OPN PULMON VALVULOPLASTY 3514 OPN TRICUS VALVULOPLASTY 3520 REPLACE HEART VALVE NOS 3521 REPLACE AORT VALV-TISSUE 3522 REPLACE AORTIC VALVE NEC 3523 REPLACE MITR VALV-TISSUE 3524 REPLACE MITRAL VALVE NEC 3525 REPLACE PULM VALV-TISSUE 3526 REPLACE PULMON VALVE NEC 3527 REPLACE TRIC VALV-TISSUE 3528 REPLACE TRICUSP VALV NEC 3531 PAPILLARY MUSCLE OPS 3532 CHORDAE TENDINEAE OPS 3533 ANNULOPLASTY 3534 INFUNDIBULECTOMY 3535 TRABECUL CARNEAE CORD OP 3539 TISS ADJ TO VALV OPS NEC 3541 ENLARGE EXISTING SEP DEF 3542 CREATE SEPTAL DEFECT 3550 PROSTH REP HRT SEPTA NOS 3551 PROS REP ATRIAL DEF-OPN 3552 PROS REPAIR ATRIA DEF-CL 3553 PROST REPAIR VENTRIC DEF 3554 PROS REP ENDOCAR CUSHION 3555 PROS REP VENTRC DEF-CLOS OCT06-

	0277 Congestive heart failure admission rate (PQI 8)
	3560 GRFT REPAIR HRT SEPT NOS 3561 GRAFT REPAIR ATRIAL DEF 3562 GRAFT REPAIR VENTRIC DEF 3563 GRFT REP ENDOCAR CUSHION 3570 HEART SEPTA REPAIR NOS 3571 ATRIA SEPTA DEF REP NEC 3572 VENTR SEPTA DEF REP NEC 3573 ENDOCAR CUSHION REP NEC 3581 TOT REPAIR TETRAL FALLOT 3582 TOTAL REPAIR OF TAPVC 3583 TOT REP TRUNCUS ARTERIOS 3584 TOT COR TRANSPOS GRT VES 3591 INTERAT VEN RETRN TRANSP 3592 CONDUIT RT VENT-PUL ART 3593 CONDUIT LEFT VENTR-AORTA 3594 CONDUIT ARTIUM-PULM ART 3595 HEART REPAIR REVISION 3596 PERC HEART VALVULOPLASTY 3598 OTHER HEART SEPTA OPS 3599 OTHER HEART VALVE OPS 3601 PTCA-1 VESSEL W/O AGENT 3602 PTCA-1 VESSEL WITH AGNT 3603 OPEN CORONRY ANGIOPLASTY 3604 INTRCORONRY THROMB INFUS 3605 PTCA-MULTIPLE VESSEL 3606 INSERT OF COR ART STENT OCT95- 3607 INS DRUG-ELUT CORONRY ST OCT02- 3609 REM OF COR ART OBSTR NEC 3610 AORTOCORONARY BYPASS NOS 3611 AORTOCOR BYPAS-1 COR ART 3612 AORTOCOR BYPAS-2 COR ART 3613 AORTOCOR BYPAS-3 COR ART 3614 AORTCOR BYPAS-4+ COR ART 3615 1 INT MAM-COR ART BYPASS 3616 2 INT MAM-COR ART BYPASS 3617 ABD-CORON ART BYPASS OCT96- 3619 HRT REVAS BYPS ANAS NEC 362 ARTERIAL IMPLANT REVASC 363 OTH HEART REVASCULAR 3631 OPEN CHEST TRANS REVASC 3632 OTH TRANSMYO REVASCULAR 3633 ENDO TRANSMYO REVASCULAR OCT06- 3634 PERC TRANSMYO REVASCULAR OCT06- 3639 OTH HEART REVASULAR 3691 CORON VESS ANEURYSM REP 3699 HEART VESSLE OP NEC 3731 PERICARDIECTOMY 3732 HEART ANEURYSM EXCISION 3733 EXC/DEST HRT LESION OPEN 3734 EXC/DEST HRT LES OTHER 3735 PARTIAL VENTRICULECTOMY 3736 EXCISION OR DESTRUCTION OF LEFT ATRIAL APPENDAGE (LAA) OCT08-

	0277 Congestive heart failure admission rate (PQI 8)
	3741 IMPLANT PROSTH CARD SUPPORT DEV OCT06 375 HEART TRANSPLANTATION (NOT VALID AFTER OCT 03) 3751 HEART TRANPLANTATION OCT03- 3752 IMPLANT TOT REP HRT SYS OCT03- 3753 REPL/REP THORAC UNIT HRT OCT03- 3754 REPL/REP OTH TOT HRT SYS OCT03- 3755 REMOVAL OF INTERNAL BIVENTRICULAR HEART REPLACEMENT SYSTEM OCT08- 3760 IMPLANTATION OR INSERTION OF BIVENTRICULAR EXTERNAL HEART ASSIST SYSTEM OCT08- 3761 IMPLANT OF PULSATION BALLOON 3762 INSERTION OF NON-IMPLANTABLE HEART ASSIST SYSTEM 3763 REPAIR OF HEART ASSIST SYSTEM 3764 REMOVAL OF HEART ASSIST SYSTEM 3765 IMPLANT OF EXTERNAL HEART ASSIST SYSTEM 3766 INSERTION OF IMPLANTABLE HEART ASSIST SYSTEM 3770 INT INSERT PACEMAK LEAD 3771 INT INSERT LEAD IN VENT 3772 INT INSERT LEAD ATRI-VENT 3773 INT INSER LEAD IN ATRIUM 3774 INT OR REPL LEAD EPICAR AHRQ Quality Indicators Web Site: http://www.qualityindicators.ahrq.gov Prevention Quality Indicators Technical Specifications Version 4.2– 2010 PQI #8 Congestive Heart Failure (CHF) Admission Rate Page 3 3775 REVISION OF LEAD 3776 REPL TV ATRI-VENT LEAD 3777 REMOVAL OF LEAD W/O REPL 3778 INSER TEAM PACEMAKER SYS 3779 REVIS OR RELOCATE POCKET 3780 INT OR REPL PERM PACEMKR 3781 INT INSERT 1-CHAM, NON 3782 INT INSERT 1-CHAM, RATE 3783 INT INSERT DUAL-CHAM DEV 3785 REPL PACEM W 1-CHAM, NON 3786 REPL PACEM 1-CHAM, RATE 3787 REPL PACEM W DUAL-CHAM 3789 REVISE OR REMOVE PACEMAK 3794 IMPLT/REPL CARDDEFIB TOT 3795 IMPLT CARDIODEFIB LEADS 3796 IMPLT CARDIODEFIB GENATR 3797 REPL CARDIODEFIB LEADS 3798 REPL CARDIODEFIB GENRATR
Denominator Statement	Population in Metro Area or county, age 18 years and older.
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: Time period is user defined. Users of the measure typically use a 12 month time period. Population in Metro Area or county, age 18 years and older.

	0277 Congestive heart failure admission rate (PQI 8)
Exclusions	None
Exclusion Details	Not applicable
Risk Adjustment	Risk adjustment method widely or commercially available. URL http://qualityindicators.ahrq.gov/downloads/pqi/PQI_Risk_Adjustment_Tables_(Version_4_2).pdf
Stratification	Observed rates may be stratified by gender, age (5-year age groups), race / ethnicity
Type Score	Rate/proportion better quality = lower score
Algorithm	

	0286 Aspirin at arrival
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-01-02, Baltimore, MD 21244-1850
Description	Percentage of emergency department acute myocardial infarction (AMI) patients or chest pain patients (with Probable Cardiac Chest Pain) without aspirin contraindications who received aspirin within 24 hours before ED arrival or prior to transfer.
Type	Process
Data Source	Electronic administrative data/claims, Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244
Level	Facility/Agency, Population: National
Setting	Ambulatory Care: Emergency Dept, Ambulatory Care: Hospital Outpatient, Hospital
Numerator Statement	Emergency Department AMI or Chest Pain patients (with Probable Cardiac Chest Pain) who received aspirin within 24 hours before ED arrival or prior to transfer.
Numerator Details	Time Window: During the measurement period. Patients with: • An E/M Code for emergency department encounter as defined in Appendix A, Table 1.0, and • Patients discharged/transferred to a short term general hospital for inpatient care, or to a Federal healthcare facility, and • An ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 1.1 or an ICD-9-CM Principal or Other Diagnosis Codes for Angina, Acute Coronary Syndrome, or Chest Pain as defined in Appendix A, OP Table 1.1a with Probable Cardiac Chest Pain and • Patients with Aspirin Received.
Denominator Statement	Emergency Department AMI or Chest Pain patients (with Probable Cardiac Chest Pain) without aspirin contraindications.
Denominator Categories	Female; Male 18 years of age and older
Denominator Details	Time Window: During the measurement period. Patients with: • An E/M Code for emergency department encounter as defined in Appendix A, Table 1.0, and • Patients discharged/transferred to a short term general hospital for inpatient care, or to a Federal healthcare facility, and • An ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 1.1 or an ICD-9-CM Principal or Other Diagnosis Codes for Angina, Acute Coronary Syndrome, or Chest Pain as defined in

	0286 Aspirin at arrival
	Appendix A, OP Table 1.1a with Probable Cardiac Chest Pain
Exclusions	Excluded Populations: • Patients less than 18 years of age • Patients with a documented reason for no aspirin on arrival.
Exclusion Details	Specifications available at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244
Risk Adjustment	No risk adjustment necessary N/A
Stratification	Specifications available at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244
Type Score	Rate/proportion better quality = higher score
Algorithm	Specifications available at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244

	0288 Fibrinolytic therapy received within 30 minutes of ed arrival
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-01-02, Baltimore, MD 21244-1850
Description	Emergency Department acute myocardial infarction (AMI) patients receiving fibrinolytic therapy during the ED stay and having a time from ED arrival to fibrinolysis of 30 minutes or less.
Type	Process
Data Source	Electronic administrative data/claims, Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244 URL http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244
Level	Facility/Agency, Population: National
Setting	Ambulatory Care: Emergency Dept, Ambulatory Care: Hospital Outpatient, Hospital
Numerator Statement	Emergency Department AMI patients whose time from ED arrival to fibrinolysis is 30 minutes or less.
Numerator Details	Time Window: During the measurement period. Patients with: • An E/M Code for emergency department encounter as defined in Appendix A, OP Table 1.0, and • Patients discharged/transferred to a short-term general hospital for inpatient care, or to a Federal healthcare facility, and • An ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 1.1, and • ST-segment elevation or LBBB on the ECG performed closest to ED arrival, and • Fibrinolytic Administration as defined in the Data Dictionary.
Denominator Statement	Emergency Department AMI patients with ST-segment elevation or LBBB on ECG who received fibrinolytic therapy.
Denominator Categories	Female; Male 18 years of age and older
Denominator Details	Time Window: During the measurement period. Patients with: • An E/M Code for emergency department encounter as defined in Appendix A, OP Table 1.0, and • Patients discharged/transferred to a short-term general hospital for inpatient care, or to a Federal healthcare facility, and • An ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 1.1, and • ST-segment elevation or LBBB on the ECG performed closest to ED arrival, and

	0288 Fibrinolytic therapy received within 30 minutes of ed arrival
	• Fibrinolytic Administration as defined in the Data Dictionary.
Exclusions	Excluded Populations: • Patients less than 18 years of age • Patients who did not receive Fibrinolytic Administration within 30 minutes AND had a Reason for Delay in Fibrinolytic Therapy as defined in the Data Dictionary.
Exclusion Details	See specifications at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244
Risk Adjustment	No risk adjustment necessary N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	See specifcations at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244

	0289 Median time to ECG
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-01-02, Baltimore, MD 21244-1850
Description	Median time from emergency department arrival to ECG (performed in the ED prior to transfer) for acute myocardial infarction (AMI) or Chest Pain patients (with probable cardiac chest pain).
Type	Process
Data Source	Electronic administrative data/claims, Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244
Level	Facility/Agency, Population: National
Setting	Ambulatory Care: Emergency Dept, Ambulatory Care: Hospital Outpatient, Hospital
Numerator Statement	Continuous Variable Statement: Time (in minutes) from emergency department arrival to ECG (performed in the ED prior to transfer) for acute myocardial infarction (AMI) or Chest Pain patients (with Probable Cardiac Chest Pain). Included Populations: • ICD-9-CM Principal or Other Diagnosis Code for AMI as defined in Appendix A1, OP Table 6.1 or an ICD-9-CM Principal or Other Diagnosis Code for Angina, Acute Coronary Syndrome, or Chest Pain as defined in Appendix A1, OP Table 6.1a, and • E/M Code for emergency department encounter as defined in Appendix A1, OP Table 1.0a, and • Patients receiving an ECG as defined in the Appendix A1, and • Patients discharged/transferred to a short term general hospital for inpatient care, to a Federal healthcare facility, or to a Critical Access Hospital.
Numerator Details	Time Window: During the measurement period. Patients with: • An E/M Code for emergency department encounter as defined in Appendix A, OP Table 1.0, and • Patients discharged/transferred to a short term general hospital for inpatient care, or to a Federal healthcare facility, and • An ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 1.1 or an ICD-9-CM Principal or Other Diagnosis Codes for Angina, Acute Coronary Syndrome, or Chest Pain as defined in Appendix A, OP Table 1.1a, and • Patients receiving an ECG as defined in the Data Dictionary.
Denominator Statement	Continuous Variable Statement: Time (in minutes) from emergency department arrival to ECG (performed in the ED prior to transfer) for acute myocardial infarction (AMI) or Chest Pain patients (with Probable Cardiac Chest Pain).

	0289 Median time to ECG
Denominator Categories	Female; Male 18 years of age and older
Denominator Details	Time Window: During the measurement period. Patients with: • An E/M Code for emergency department encounter as defined in Appendix A, OP Table 1.0, and • Patients discharged/transferred to a short term general hospital for inpatient care, or to a Federal healthcare facility, and • An ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 1.1 or an ICD-9-CM Principal or Other Diagnosis Codes for Angina, Acute Coronary Syndrome, or Chest Pain as defined in Appendix A, OP Table 1.1a, and • Patients receiving an ECG as defined in the Data Dictionary
Exclusions	Patients less than 18 years of age
Exclusion Details	Specifications available at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244
Risk Adjustment	No risk adjustment necessary N/A
Stratification	N/A
Type Score	Continuous variable better quality = lower score
Algorithm	Specifications available at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244

	0290 Median time to transfer to another facility for acute coronary intervention
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-01-02, Baltimore, MD 21244-1850
Description	Median time from emergency department arrival to time of transfer to another facility for acute coronary intervention.
Type	Process
Data Source	Electronic administrative data/claims, Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244 URL http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244
Level	Can be measured at all levels, Facility/Agency, Population: National
Setting	Ambulatory Care: Emergency Dept, Ambulatory Care: Hospital Outpatient, Hospital
Numerator Statement	Continuous Variable Statement: Time (in minutes) from emergency department arrival to transfer to another facility for acute coronary intervention Included Populations: • ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 6.1, and • E/M Code for emergency department encounter as defined in Appendix A, OP Table 1.0a, and • Patients discharged/transferred to a short-term general hospital for inpatient care, to a Federal healthcare facility, or to a Critical Access Hospital, and • Patients not receiving Fibrinolytic Administration as defined in the Data Dictionary, and • Patients with Transfer for Acute Coronary Intervention as defined in the Data Dictionary.
Numerator Details	Time Window: During the measurement period. Patients with: • An E/M Code for emergency department encounter as defined in Appendix A, OP Table 1.0, and • Patients discharged/transferred to a short-term general hospital for inpatient care, or to a Federal healthcare facility, and • An ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 1.1, and • ST-segment elevation or LBBB on the ECG performed closest to ED arrival, and • Patients with Transfer for Acute Coronary Intervention as defined in the Data Dictionary.
Denominator Statement	Time (in minutes) from emergency department arrival to transfer to another facility for acute coronary intervention.
Denominator Categories	Female; Male 18 years of age and older

	0290 Median time to transfer to another facility for acute coronary intervention
Denominator Details	Time Window: During the measurement period. Patients with: • An E/M Code for emergency department encounter as defined in Appendix A, OP Table 1.0, and • Patients discharged/transferred to a short-term general hospital for inpatient care, or to a Federal healthcare facility, and • An ICD-9-CM Principal Diagnosis Code for AMI as defined in Appendix A, OP Table 1.1, and • ST-segment elevation or LBBB on the ECG performed closest to ED arrival, and • Patients with Transfer for Acute Coronary Intervention as defined in the Data Dictionary.
Exclusions	• Patients less than 18 years of age • Patients receiving Fibrinolytic Administration as defined in the Data Dictionary.
Exclusion Details	Specifications available at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244
Risk Adjustment	No risk adjustment necessary N/A
Stratification	Specifications available at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244
Type Score	Continuous variable better quality = lower score
Algorithm	Specifications available at http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244

	0330 Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization
Steward	Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-02-01, Baltimore, MD 21244-9045
Description	The measure estimates a hospital 30-day risk-standardized readmission rate (RSRR), defined as readmission for any cause within 30 days after the date of discharge of the index admission for patients discharged from the hospital with a principal diagnosis of heart failure (HF).
Type	Outcome
Data Source	Electronic administrative data/claims URL http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1219069855841
Level	Facility/Agency
Setting	Hospital/Acute Care Facility
Numerator Statement	This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year); thus, we are using this field to define the outcome. The outcome for this measure is 30 day all-cause readmission. We define this as readmission for any cause within 30 days from the date of discharge of the index HF admission for paients 18 and older. In addition, if a patient has one or more admissions within 30 days of discharge from the index admission, only one was counted as a readmission.
Numerator Details	Time Window: Defined as readmission for any cause within 30 days from the date of discharge of the index admission. Measure includes readmissions to any acute care hospital for any cause within 30 days of the index HF admission discharge date.
Denominator Statement	Note: This outcome measure does not have a traditional numerator and denominator like a core process measure; thus, we are using this field to define the patient cohort and to define the patient cohort. 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. While the measure can be applied to populations aged 18 years or older, nationally data are often only available for patients aged 65 years or older. We have explicitly tested the measure in both age groups. The cohort includes admissions for patients discharged from the hospital with a principal diagnosis of HF (ICD-9-CM codes 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, and 428.xx) and with a complete claims history for the 12 months prior to admission.

	0330 Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization
Denominator Categories	Female; Male The target population is age 18 years or older
Denominator Details	Time Window: This measure was developed with 12 months of data. Currently the measure is publicly reported with three years of index hospitalizations. The denominator includes patients aged 18 and older admitted to non-federal acute care hospitals for HF defined by a principal discharge diagnosis of the following (ICD-9-CM codes 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, and 428.xx) and with a complete claims history for the 12 months prior to admission. ICD-9-CM codes that define the patient cohort: 402.01 Hypertensive heart disease, malignant, with heart failure 402.11 Hypertensive heart disease, benign, with heart failure 402.91 Hypertensive heart disease, unspecified, with heart failure 404.01 Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.03 Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage V or end stage renal disease 404.11 Hypertensive heart and chronic kidney disease, benign, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.13 Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage V or end stage renal disease 404.91 Hypertensive heart and chronic kidney disease, unspecified, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified 404.93 Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage V or end stage renal disease 428.0 Congestive heart failure, unspecified 428.1 Left heart failure 428.20 Unspecified systolic heart failure 428.21 Acute systolic heart failure 428.22 Chronic systolic heart failure 428.23 Acute on chronic systolic heart failure 428.30 Unspecified diastolic heart failure 428.31 Acute diastolic heart failure 428.32 Chronic diastolic heart failure 428.33 Acute on chronic diastolic heart failure 428.40 Unspecified combined systolic and diastolic heart failure 428.41 Acute combined systolic and diastolic heart failure 428.42 Chronic combined systolic and diastolic heart failure 428.43 Acute on chronic combined systolic and diastolic heart failure 428.9 Heart Failure, unspecified
Exclusions	For all cohorts, the measure excludes admissions for patients: • with an in-hospital death (because they are not eligible for readmission); • without at least 30 days post-discharge enrollment in Medicare FFS (because the 30-day readmission outcome cannot be assessed in this group); • transferred to another acute care facility (When a patient is transferred from one acute care hospital to another, these multiple contiguous hospitalizations are considered one episode of care. Readmissions for

	0330 Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization
	transferred patients are attributed to the hospital that ultimately discharges the patient to a non-acute care setting.); • discharged against medical advice (AMA) (because providers did not have the opportunity to deliver full care and prepare the patient for discharge); • admitted with HF within 30 days of discharge from an index admission (Admissions within 30 days of discharge of an index admission will be considered readmissions. No admission is counted as a readmission and an index admission. The next eligible admission after the 30-day time period following an index admission will be considered another index admission.)
Exclusion Details	See "Denominator Exclusions" section.
Risk Adjustment	Risk-adjustment devised specifically for this measure/condition. Our approach to risk adjustment was 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 (a form of hierarchical generalized linear model [HGLM]) to create a hospital level 30-day RSRR. This approach to modeling appropriately accounts for the structure of the data (patients clustered within hospitals), the underlying risk due to patients' comorbidities, and sample size at a given hospital when estimating hospital readmission rates. In brief, the approach simultaneously models two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand and Shahian et al. 2007). At the patient level, each model adjusts the log-odds of readmission within 30-days of admission for age, sex, selected clinical covariates and a hospital-specific intercept. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept, or hospital specific effect, represents the hospital contribution to the risk of readmission, after accounting for patient risk and sample size, and can be inferred as a measure of quality. The hospital-specific intercepts are given a distribution in order 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. Candidate and Final Risk-adjustment Variables: The measure was developed using Medicare FFS claims data. Candidate variables were patient-level risk-adjustors that are expected to be predictive of readmission, based on empirical analysis, prior literature, and clinical judgment, including demographic factors (age, sex) and indicators of comorbidity and disease severity. For each patient, covariates were obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusted for case differences based on the clinical status of the patient 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. In addition, only comorbidities that conveyed information about the patient at that time or in the 12-months prior, and not complications that arose during the course of the hospitalization were included in the risk-adjustment. We did not risk-adjust for CCs that were possible adverse events of care and that were only recorded in the index admission, The final set of risk-adjustment variables is: Demographic

	0330 Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization
	• Age-65 (years above 65, continuous) for 65 and over cohorts; or Age (years, continuous) for 18 and over cohorts. • Male Cardiovascular • History of CABG • Cardio-respiratory failure or shock • Congestive heart failure • Acute coronary syndrome • Coronary atherosclerosis or angina • Valvular or rheumatic heart disease • Specified arrhythmias • Other or unspecified heart disease • Vascular or circulatory disease Comorbidity • Metastatic cancer or acute leukemia • Cancer • Diabetes or DM complications • Protein-calorie malnutrition • Disorders of fluid, electrolyte, acid-base • Liver or biliary disease • Peptic ulcer, hemorrhage, other specified gastrointestinal disorders • Other gastrointestinal disorders • Severe hematological disorders • Iron deficiency or other anemias and blood disease • Dementia or other specified brain disorders • Drug/alcohol abuse/dependence/psychosis • Major psychiatric disorders • Depression • Other psychiatric disorders • Hemiplegia, paraplegia, paralysis, functional disability • Stroke • Chronic obstructive pulmonary disease • Fibrosis of lung or other chronic lung disorders • Asthma • Pneumonia • End stage renal disease or dialysis • Renal failure • Nephritis • Other urinary tract disorders • Decubitus ulcer or chronic skin ulcer -- 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. http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=12190698

	0330 Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization
	55841
Stratification	Results of this measure will not be stratified.
Type Score	Rate/proportion better quality = lower score
Algorithm	The RSRR is calculated as the ratio of the number of "adjusted-actual" readmissions (also referred to as "predicted')to the number of "expected" readmissions at a given hospital, multiplied by the national unadjusted readmission rate. For each hospital, the "numerator" of the ratio is the number of readmissions within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the "denominator" is the number of readmissions 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 readmission or better quality and a higher ratio indicates higher-than-expected readmission or worse quality. The "adjusted actual" readmissions (the numerator) is calculated by regressing the risk factors and the hospital-specific intercept on the risk of readmission, multiplying the estimated regression coefficients by the patient characteristics in the hospital, transforming, and then summing over all patients attributed to the hospital to get a value. The expected number of readmissions (the denominator) is obtained by regressing the risk factors and a common intercept on the readmission outcome using all hospitals in our sample, multiplying the subsequent estimated regression coefficients by the patient characteristics observed in the hospital, transforming, and then summing over all patients in the hospital to get a value. To assess hospital performance in any reporting period, the model coefficients are re-estimated using the years of data in that period.

	0355 Bilateral cardiac catheterization rate (IQI 25)
Steward	Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850
Description	Percent of discharges with heart catheterizations in any procedure field with simultaneous right and left heart (bilateral) heart catheterizations.
Type	Outcome
Data Source	Electronic administrative data/claims URL http://www.qualityindicators.ahrq.gov/software.htm URL http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf
Level	Facility/Agency
Setting	Hospital
Numerator Statement	Discharges with ICD-9-CM procedure code for right and left heart catheterization in any procedure code field.
Numerator Details	Time Window: Inpatient hospitalization ICD-9-CM right and left heart catheterization procedure code: 3723 RT/LEFT HEART CARD CATH Exclude cases: • with valid indications for right-sided catheterization ICD-9-CM Indications for Right Heart Catheterization diagnosis codes: 3910 ACUTE RHEUMATIC PERICARD 3911 ACUTE RHEUMATIC ENDOCARD 3912 AC RHEUMATIC MYOCARDITIS 3918 AC RHEUMAT HRT DIS NEC 3919 AC RHEUMAT HRT DIS NOS 3920 RHEUM CHOREA W HRT INVOL 3929 RHEUMATIC CHOREA NOS 393 CHR RHEUMATIC PERICARD 3940 MITRAL STENOSIS 3941 RHEUMATIC MITRAL INSUFF 3942 MITRAL STENOSIS W INSUFF 3949 MITRAL VALVE DIS NEC/NOS 3960 MITRAL/AORTIC STENOSIS 3961 MITRAL STENOS/AORT INSUF 3962 MITRAL INSUF/AORT STENOS 3963 MITRAL/AORTIC VAL INSUFF 3968 MITR/AORTIC MULT INVOLV 3969 MITRAL/AORTIC V DIS NOS 3970 TRICUSPID VALVE DISEASE 3971 RHEUM PULMON VALVE DIS

	0355 Bilateral cardiac catheterization rate (IQI 25)	
	3979	RHEUM ENDOCARDITIS NOS
	3980	RHEUMATIC MYOCARDITIS
	39890	RHEUMATIC HEART DIS NOS
	39891	RHEUMATIC HEART FAILURE
	39899	RHEUMATIC HEART DIS NEC
	40200	MAL HYPERTEN HRT DIS NOS
	40201	MAL HYPERT HRT DIS W CHF
	40210	BEN HYPERTEN HRT DIS NOS
	40211	BENIGN HYP HRT DIS W CHF
	40290	HYPERTENSIVE HRT DIS NOS
	40291	HYPERTEN HEART DIS W CHF
	40400	MAL HY HT/REN W/O HF/RF
	40401	MAL HYPER HRT/REN W HF
	40402	MAL HY HT/REN W REN FAIL
	40403	MAL HYP HRT/REN W HF/RF
	40410	BEN HY HT/REN W/O HF/RF
	40411	BEN HYPER HRT/REN W HF
	40412	BEN HY HT/REN W REN FAIL
	40413	BEN HYP HRT/REN W HF/RF
	40490	HY HT/REN NOS W/O HF/RF
	40491	HYPER HRT/REN NOS W HF
	40492	HY HT/REN NOS W REN FAIL
	74684	OBSTRUCT HEART ANOM NEC
	74685	CORONARY ARTERY ANOMALY
	74686	CONGENITAL HEART BLOCK
	74687	MALPOSITION OF HEART
	74689	CONG HEART ANOMALY NEC
	7469	CONG HEART ANOMALY NOS
	7470	PATENT DUCTUS ARTERIOSUS
	74710	COARCTATION OF AORTA
	74711	INTERRUPT OF AORTIC ARCH
	74720	CONG ANOM OF AORTA NOS
	74721	ANOMALIES OF AORTIC ARCH
	74722	AORTIC ATRESIA/STENOSIS
	74729	CONG ANOM OF AORTA NEC
	7473	PULMONARY ARTERY ANOM
	74740	GREAT VEIN ANOMALY NOS
	40493	HYP HRT/REN NOS W HF/RF
	4150	ACUTE COR PULMONALE
	4151	PULM EMBOLISM/INFARCT-
	41511	IATROGENIC PULMON. EMBOLISM
	41512	SEPTIC PULMONARY EMBOLSM
	41519	OTHER PULMON EMBOLISM
	4160	PRIM PULM HYPERTENSION
	4161	KYPHOSCOLIOTIC HEART DIS
	4168	CHR PULMON HEART DIS NEC
	4169	CHR PULMON HEART DIS NOS
	4170	ARTERIOVEN FISTU PUL VES
	4171	PULMON ARTERY ANEURYSM
	4178	PULMON CIRCULAT DIS NEC
	4179	PULMON CIRCULAT DIS NOS
	4200	AC PERICARDIT IN OTH DIS

	0355 Bilateral cardiac catheterization rate (IQI 25)
	42090 ACUTE PERICARDITIS NOS 42091 AC IDIOPATH PERICARDITIS 42099 ACUTE PERICARDITIS NEC 4210 AC/SUBAC BACT ENDOCARD 4211 AC ENDOCARDIT IN OTH DIS 4219 AC/SUBAC ENDOCARDIT NOS 4220 AC MYOCARDIT IN OTH DIS 42290 ACUTE MYOCARDITIS NOS 42291 IDIOPATHIC MYOCARDITIS 42292 SEPTIC MYOCARDITIS 42293 TOXIC MYOCARDITIS 42299 ACUTE MYOCARDITIS NEC 4230 HEMOPERICARDIUM 4231 ADHESIVE PERICARDITIS 4232 CONSTRICTIV PERICARDITIS 4233 CARDIAC TAMPONADE 4238 PERICARDIAL DISEASE NEC 4239 PERICARDIAL DISEASE NOS 4240 MITRAL VALVE DISORDER 4241 AORTIC VALVE DISORDER 4242 NONRHEUM TRICUSP VAL DIS 4243 PULMONARY VALVE DISORDER 42490 ENDOCARDITIS NOS 42491 ENDOCARDITIS IN OTH DIS 42499 ENDOCARDITIS NEC 4250 ENDOMYOCARDIAL FIBROSIS 4251 HYPERTR OBSTR CARDIOMYOP 4252 OBSC AFRIC CARDIOMYOPATH 4253 ENDOCARD FIBROELASTOSIS 4254 PRIM CARDIOMYOPATHY NEC 4255 ALCOHOLIC CARDIOMYOPATHY 4257 METABOLIC CARDIOMYOPATHY 4258 CARDIOMYOPATH IN OTH DIS 4259 SECOND CARDIOMYOPATH NOS 4280 CHF NOS 4281 LEFT HEART FAILURE 42820 SYSTOLIC HRT FAILURE NOS 42821 AC SYSTOLIC HRT FAILURE 42822 CHR SYSTOLIC HRT FAILURE 42823 AC ON CHR SYST HRT FAIL 42830 DIASTOLC HRT FAILURE NOS 42831 AC DIASTOLIC HRT FAILURE 42832 CHR DIASTOLIC HRT FAIL 42833 AC ON CHR DIAST HRT FAIL 42840 SYST/DIAST HRT FAIL NOS 42841 AC SYST/DIASTOL HRT FAIL 42842 CHR SYST/DIASTL HRT FAIL 42843 AC/CHR SYST/DIA HRT FAIL 4289 HEART FAILURE NOS 7450 COMMON TRUNCUS 74510 COMPL TRANSPOS GREAT VES 74511 DOUBLE OUTLET RT VENTRIC

	0355 Bilateral cardiac catheterization rate (IQI 25)
	74512 CORRECT TRANSPOS GRT VES 74519 TRANSPOS GREAT VESS NEC 7452 TETRALOGY OF FALLOT 7453 COMMON VENTRICLE 7454 VENTRICULAR SEPT DEFECT 7455 SECUNDUM ATRIAL SEPT DEF 74560 ENDOCARD CUSHION DEF NOS 74561 OSTIUM PRIMUM DEFECT 74569 ENDOCARD CUSHION DEF NEC 7457 COR BILOCULARE 7458 SEPTAL CLOSURE ANOM NEC 7459 SEPTAL CLOSURE ANOM NOS 74600 PULMONARY VALVE ANOM NOS 74601 CONG PULMON VALV ATRESIA 74602 CONG PULMON VALVE STENOS 74609 PULMONARY VALVE ANOM NEC 7461 CONG TRICUSP ATRES/STEN 7462 EBSTEIN´S ANOMALY 7463 CONG AORTA VALV STENOSIS 7464 CONG AORTA VALV INSUFFIC 7465 CONGEN MITRAL STENOSIS 7466 CONG MITRAL INSUFFICIENC 7467 HYPOPLAS LEFT HEART SYND 74681 CONG SUBAORTIC STENOSIS 74682 COR TRIATRIATUM 74683 INFUNDIB PULMON STENOSIS 74741 TOT ANOM PULM VEN CONNEC 74742 PART ANOM PULM VEN CONN 74749 GREAT VEIN ANOMALY NEC 7475 UMBILICAL ARTERY ABSENCE 74760 UNSP PRPHERL VASC ANOMAL 74761 GSTRONTEST VESL ANOMALY 74762 RENAL VESSEL ANOMALY 74763 UPR LIMB VESSEL ANOMALY 74764 LWR LIMB VESSEL ANOMALY 74769 OTH SPCF PRPH VSCL ANOML 74781 CEREBROVASCULAR ANOMALY 74782 SPINAL VESSEL ANOMALY 74783 PERSISTENT FETAL CIRC OCT02- 74789 CIRCULATORY ANOMALY NEC 7479 CIRCULATORY ANOMALY NOS
Denominator Statement	Discharges with ICD-9-CM procedure code for heart catheterizations in any procedure code field.
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: User defined; Most users use one calendar year All discharges, age 18 years and older, with heart catheterization in any procedure field.

	0355 Bilateral cardiac catheterization rate (IQI 25)
	ICD-9-CM heart catheterization procedure codes: 3722 LEFT HEART CARDIAC CATH 3723RT/LEFT HEART CARD CATH Include only cases with any diagnosis of coronary artery disease. ICD-9-CM coronary artery disease diagnosis codes: 41000 AMI ANTEROLATERAL, UNSPEC 41001 AMI ANTEROLATERAL, INIT 41002 AMI ANTEROLATERAL, SUBSEQ 41010 AMI ANTERIOR WALL, UNSPEC 41011 AMI ANTERIOR WALL, INIT 41012 AMI ANTERIOR WALL, SUBSEQ 41020 AMI INFEROLATERAL, UNSPEC 41021 AMI INFEROLATERAL, INIT 41022 AMI INFEROLATERAL, SUBSEQ 41030 AMI INFEROPOST, UNSPEC 41031 AMI INFEROPOST, INITIAL 41032 AMI INFEROPOST, SUBSEQ 41040 AMI INFERIOR WALL, UNSPEC 41041 AMI INFERIOR WALL, INIT 41042 AMI INFERIOR WALL, SUBSEQ 41050 AMI LATERAL NEC, UNSPEC 41051 AMI LATERAL NEC, INITIAL 41052 AMI LATERAL NEC, SUBSEQ 41060 TRUE POST INFARCT, UNSPEC 41061 TRUE POST INFARCT, INIT 41062 TRUE POST INFARCT, SUBSEQ 41070 SUBENDO INFARCT, UNSPEC 41071 SUBENDO INFARCT, INITIAL 41072 SUBENDO INFARCT, SUBSEQ 41080 AMI NEC, UNSPECIFIED 41081 AMI NEC, INITIAL 41082 AMI NEC, SUBSEQUENT 41090 AMI NOS, UNSPECIFIED 41091 AMI NOS, INITIAL 41092 AMI NOS, SUBSEQUENT 4110 POST MI SYNDROME 4111 INTERMED CORONARY SYND 41181 CORONARY OCCLSN W/O MI 41189 AC ISCHEMIC HRT DIS NEC 412 OLD MYOCARDIAL INFARCT 4130 ANGINA DECUBITUS 4131 PRINZMETAL ANGINA 4139 ANGINA PECTORIS NEC/NOS 4140 COR ATHEROSCLEROSIS OCT94- 41400 COR ATH UNSP VSL NTV/GFT OCT94- 41401 CRNRY ATHRSCL NATVE VSSL OCT94- 41402 CRN ATH ATLG VN BPS GRFT OCT94- 41403 CRN ATH NONATLG BLG GRFT OCT94- 41404 COR ATH ARTRY BYPAS GRFT OCT96- 41405 COR ATH BYPASS GRAFT NOS OCT96-

	0355 Bilateral cardiac catheterization rate (IQI 25)
	41406 COR ATH NATV ART TP HRT OCT02- 41407 COR ATH BPS GRAFT TP HRT OCT03- 41410 ANEURYSM, HEART (WALL) 41411 CORONARY VESSEL ANEURYSM 41412 DISSECTION COR ARTERY OCT02- 41419 ANEURYSM OF HEART NEC 4143 CORONARY ATHEROSCLEROSIS DUE TO LIPID RICH PLAQUE OCT08- 4148 CHR ISCHEMIC HRT DIS NEC 4149 CHR ISCHEMIC HRT DIS NOS
Exclusions	None
Exclusion Details	Not applicable
Risk Adjustment	No risk adjustment necessary None
Stratification	Observed (raw) rates may be stratified by gender, age groups, race/ethnicity categories and payer categories. Risk adjustment of the data is recommended using age and sex. Reliability adjustment is also recommended.
Type Score	Rate/proportion better quality = lower score
Algorithm	

	0358 Congestive heart failure (CHF) mortality rate (IQI 16)
Steward	Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850
Description	Percent of discharges with principal diagnosis code of CHF with in-hospital mortality.
Type	Outcome
Data Source	Electronic administrative data/claims URL None http://www.qualityindicators.ahrq.gov/software.htm URL http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf
Level	Facility/Agency
Setting	Hospital
Numerator Statement	Number of deaths (DISP = 20) among cases meeting the inclusion and exclusion rules for the denominator.
Numerator Details	Time Window: Time window can be determined by user, but is generally a calendar year. Number of deaths (DISP = 20) among cases meeting the inclusion and exclusion rules for the denominator.
Denominator Statement	All discharges, age 18 years and older, with a principal diagnosis code of CHF.
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: Time window can be determined by user, but is generally a calendar year. All discharges, age 18 years and older, with a principal diagnosis code of CHF. ICD-9-CM CHF diagnosis codes: 39891 RHEUMATIC HEART FAILURE 40201 MAL HYPERT HRT DIS W CHF 40211 BENIGN HYP HRT DIS W CHF 40291 HYPERTEN HEART DIS W CHF 40401MAL HYPER HRT/REN W CHF 40403 MAL HYP HRT/REN W CHF&RF 40411 BEN HYPER HRT/REN W CHF 40413 BEN HYP HRT/REN W CHF&RF 40491 HYPER HRT/REN NOS W CHF 40493 HYP HT/REN NOS W CHF&RF 4280 CONGESTIVE HEART FAILURE 4281 LEFT HEART FAILURE 42820 SYSTOLIC HEART FAILURE NOS OCT02- 42821 AC SYSTOLIC HRT FAILURE OCT02-

	0358 Congestive heart failure (CHF) mortality rate (IQI 16)
	42822 CHR SYSTOLIC HRT FAILURE OCT02- 42823 AC ON CHR SYST HRT FAIL OCT02- 4289 HEART FAILURE NOS 42830 DIASTOLIC HRT FAILURE NOS OCT02- 42831 AC DIASTOLIC HRT FAILURE OCT02- 42832 CHR DIASTOLIC HRT FAIL OCT02- 42833 AC ON CHR DIAST HRT FAIL OCT02- 42840 SYST/DIAST HRT FAIL NOS OCT02- 42841 AC SYST/DIASTOL HRT FAIL OCT02- 42842 CHR SYST/DIASTL HRT FAIL OCT02- 42843 AC/CHR SYST/DIA HRT FAIL OCT02- Exclude cases: • missing discharge disposition (DISP = missing), gender (SEX = missing), age (AGE = missing), quarter (DQTR = missing), year (YEAR = missing) or principal diagnosis (DX1 = missing) • transferring to another short-term hospital (DISP = 2) • MDC 14 (pregnancy, childbirth, and puerperium).
Exclusions	missing discharge disposition (DISP = missing) transferring to another short-term hospital (DISP = 2) MDC 14 (pregnancy, childbirth, and puerperium).
Exclusion Details	• Exclude cases: missing discharge disposition (DISP = missing), gender (SEX = missing), age (AGE = missing), quarter (DQTR = missing), year (YEAR = missing) or principal diagnosis (DX1 = missing) • transferring to another short-term hospital (DISP = 2) • MDC 14 (pregnancy, childbirth, and puerperium).
Risk Adjustment	Risk adjustment method widely or commercially available. URL http://qualityindicators.ahrq.gov/downloads/iqi/IQI_Risk_Adjustment_Tables_(Version_4_2).pdf
Stratification	Gender, age (5-year age groups), race / ethnicity, primary payer, custom
Type Score	Rate/proportion better quality = lower score
Algorithm	

	1522 ACE/ARB therapy at discharge for ICD implant patients with LVSD
Steward	American College of Cardiology Foundation (ACCF), 2400 N Street NW, Washington, DC 20037
Description	Proportion of ICD implant patients with a diagnosis of LVSD who are prescribed ACE-I or ARB therapy at discharge.
Type	Process
Data Source	Electronic Clinical Data: Registry URL http://www.ncdr.com/WebNCDR/ICD/ELEMENTS.ASPX URL http://www.ncdr.com/WebNCDR/ICD/ELEMENTS.ASPX
Level	Facility
Setting	Ambulatory Care: Clinic/Urgent Care, Hospital/Acute Care Facility
Numerator Statement	Count of patients with ACE-I or ARB therapy prescribed at discharge.
Numerator Details	Time Window: 1 year Discharge medications = ACE inhibitor (any) = yes or ARB (any)= yes
Denominator Statement	Count of patients with an ICD implant with moderate or severe LVSD (LVEF<40%) without contraindication to ACE inhibitors and ARBs.
Denominator Categories	Female; Male All patients
Denominator Details	Time Window: 1 year Procedure type = initial generator implant = yes or generator change = yes Generator type includes single chamber, dual chamber, and biventricular (CRT-D) ICD Most recent LVEF<40%
Exclusions	• Patients who expired prior to discharge. • Patients with ACE-I and ARB therapy contraindicated or blinded.
Exclusion Details	Discharge status = deceased ACE inhibitor (any) = contraindicated or blinded **AND** ARB (any) = contraindicated or blinded.

	1522 ACE/ARB therapy at discharge for ICD implant patients with LVSD
	Contraindicated supporting definition: Medication was not prescribed because of a contraindication. Contraindications must be documented explicitly by the physician, or clearly evidenced within the medical record Blinded supporting definition: Patient was in research study or clinical trial and administration of this specific medication is unknown
Risk Adjustment	N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	

	1524 Assessment of thromboembolic risk factors (CHADS2)
Steward	American College of Cardiology Foundation/ American Heart Association/American Medical Association´s Physician Consortium for Performance Improvement, 2400 N. Street NW, Washington, DC 20037
Description	Patients with nonvalvular atrial fibrillation or atrial flutter in whom assessment of thromboembolic risk factors using the CHADS2 risk criteria has been documented.
Type	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data: Electronic Health Record, Electronic Clinical Data: Registry, Paper Records URL Journal—see Appendix E http://content.onlinejacc.org/cgi/content/full/51/8/865 https://www.pinnacleregistry.org/Documents/PINNACLE_DataCollectionForm_1.2.pdf Journal—see Appendix E URL https://www.pinnacleregistry.org/Documents/PINNACLE_DataCollectionForm_1.2.pdf
Level	Clinician: Group/Practice, Clinician: Individual
Setting	Ambulatory Care: Clinician Office
Numerator Statement	Patients with nonvalvular atrial fibrillation or atrial flutter in whom assessment of all of the specified thromeboembolic risk factors is documented. For patients with nonvalvular atrial fibrillation or atrial flutter, assessment of thromboembolic risk should include the following factors: Electronic Specifications: Risk factors: Prior stroke or transient ischemic attack--> High risk Age = 75 years--> Moderate risk Hypertension--> Moderate risk Diabetes mellitus--> Moderate risk Heart failure or impaired LV systolic function--> Moderate risk
Numerator Details	Time Window: Reporting year
Denominator Statement	All patients 18 years of age or older with nonvalvular atrial fibrillation or atrial flutter other than those specifically excluded
Denominator Categories	Female; Male 18 years or older

	1524 Assessment of thromboembolic risk factors (CHADS2)
Denominator Details	Time Window: Reporting year For Claims/Administrative: Denominator (Eligible Population): All patients aged 18 years and older with a diagnosis of nonvalvular AF or atrial flutter ICD-9 diagnosis codes: 427.31, 427.32 AND Not ICD-9 diagnosis codes: 394.0, 394.2 (mitral stenosis); 996.02, 996.71, V42.2, V43.3 (prosthetic heart valve) AND CPT E/M Service Code: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99245 Numerator: Patients with an assessment of all of the specified thromboembolic risk factors documented during the 12 month reporting period CPT Category II code: 1180F- All specified thromboembolic risk factors assessed Denominator Exclusion: Documentation of medical reason(s) for not having an assessment of all of the specified thromboembolic risk factors documented during the 12 month reporting period • Append modifier to CPT Category II code: 1180F-1P
Exclusions	• Patients with mitral stenosis or prosthetic heart valves. • Patients with transient or reversible causes of atrial fibrillation (e.g., pneumonia or hyperthyroidism). • Postoperative patients. • Patients who are pregnant. • Medical reason(s) documented by a physician, nurse practitioner, or physician assistant for not assessing risk factors. Examples of medical reasons for not assessing risk factors include but are not limited to the following: o allergy to warfarin and other anticoagulant drugs that are FDA approved for the prevention of thromboembolism o risk of bleeding
Exclusion Details	None
Risk Adjustment	No risk adjustment necessary None
Stratification	None
Type Score	Rate/proportion better quality = higher score
Algorithm	

	1525 Chronic anticoagulation therapy
Steward	American College of Cardiology Foundation/American Heart Association/American Medical Association´s Physician Consortium for Performance Improvement, 2400 N. Street NW, Washington, DC 20037
Description	Prescription of warfarin or another anticoagulant drug that is FDA approved for the prevention of thromboembolism for all patients with nonvalvular atrial fibrillation or atrial flutter at high risk for thromboembolism, according to CHADS2 risk stratification.
Type	Process
Data Source	Electronic Clinical Data, Electronic Clinical Data: Electronic Health Record, Electronic Clinical Data: Registry, Paper Records URL Journal- see Appendix E http://content.onlinejacc.org/cgi/content/full/51/8/865 https://www.pinnacleregistry.org/Documents/PINNACLE_DataCollectionForm_1.2.pdf Journal- see Appendix E URL https://www.pinnacleregistry.org/Documents/PINNACLE_DataCollectionForm_1.2.pdf
Level	Clinician: Individual
Setting	Ambulatory Care: Clinician Office
Numerator Statement	All patients with nonvalvular atrial fibrillation or atrial flutter at high risk of thromboembolism (i.e., those with any high-risk factor or more than 1 moderate-risk factor) who are prescribed warfarin OR another anticoagulant drug that is FDA approved for the prevention of thromboembolism.
Numerator Details	Time Window: Reporting year
Denominator Statement	Patients with nonvalvular AF or atrial flutter for whom assessment of the specified thromboembolic risk factors documented one or more high-risk factor or more than one moderate-risk factor.
Denominator Categories	Female; Male 18 years or older
Denominator Details	Time Window: Reporting year Claims/Administrative: Denominator (Eligible Population): All patients aged 18 years and older with a diagnosis of nonvalvular AF or atrial flutter at high risk for thromboembolism ICD-9 diagnosis codes: 427.31, 427.32 AND Not ICD-9 diagnosis codes: 394.0, 394.2 (mitral stenosis); 996.02, 996.71, V42.2, V43.3 (prosthetic heart valve) AND

	1525 Chronic anticoagulation therapy
	CPT E/M Service Code: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99245 AND (Report a CPT Category II code for risk of thromboembolism) • CPT Category II code: 3552F- High risk for thromboembolism • CPT Category II code: 3551F- Intermediate risk for thromboembolism • CPT Category II code: 3550F- Low risk for thromboembolism NOTE: ONLY PATIENTS AT HIGH RISK FOR THROMBOEMBOLISM ARE INCLUDED IN THE MEASURE'S DENOMINATOR WHEN CALCULATING PERFORMANCE Numerator: Patients who were prescribed warfarin during the 12 month reporting period • CPT Category II code: 4012F-Warfarin therapy prescribed Denominator Exclusion: Documentation of medical reason(s) for not prescribing warfarin during the 12 month reporting period • Append modifier to CPT Category II code: 4012F-1P Documentation of patient reason(s) for not prescribing warfarin during the 12 month reporting period • Append modifier to CPT Category II code: 4012F-2P Electronic Specifications: The assessment of patients with nonvalvular AF for thromboembolic risk factors should include the following criteria: Risk factors: • Prior stroke or transient ischemic attack--> High risk • Age = 75 years--> Moderate risk • Hypertension--> Moderate risk • Diabetes mellitus--> Moderate risk • Heart failure or impaired LV systolic function--> Moderate risk
Exclusions	• Patients with mitral stenosis or prosthetic heart valves. • Patients at low risk for thromboembolism (i.e., those with none of the risk factors listed above). • Patients with only one moderate risk factor. • Postoperative patients. • Patients with transient or reversible causes of AF (e.g., pneumonia or hyperthyroidism). • Patients who are pregnant. • Medical reason(s) documented by a physician, nurse practitioner, or physician assistant for not prescribing warfarin or another anticoagulant drug that is FDA approved for the prevention of thromboembolism. Examples of medical reasons include, but are not limited to: o Allergy o Risk of bleeding. • Documentation of patient reason(s) for not prescribing warfarin or another anticoagulant drug that is FDA approved for the prevention of thromboembolism (e.g., economic, social, and/or religious impediments, noncompliance or patient refusal).

	1525 Chronic anticoagulation therapy
Exclusion Details	None
Risk Adjustment	No risk adjustment necessary N/A
Stratification	None
Type Score	Rate/proportion better quality = higher score
Algorithm	

	1528 Beta blocker at discharge for ICD implant patients with a previous MI
Steward	American College of Cardiology Foundation (ACCF), 2400 N Street NW, Washington, DC 20037
Description	Proportion of ICD implant patients with a diagnosis of previous MI who are prescribed a Beta Blocker at discharge.
Type	Process
Data Source	National Cardiovascular Data Registry (NCDR)® ICD RegistryTM http://www.ncdr.com/WebNCDR/ICD/ELEMENTS.ASPX URL http://www.ncdr.com/WebNCDR/ICD/ELEMENTS.ASPX URL http://www.ncdr.com/WebNCDR/ICD/ELEMENTS.ASPX
Level	Affects large numbers; Frequently performed procedure; Leading cause of morbidity/mortality; High resource use; Severity of illness.
Setting	Facility
Numerator Statement	Count of patients discharged on beta-blocker therapy.
Numerator Details	Time Window: 1 year discharge medication of beta blocker (any)= yes
Denominator Statement	Count of patients with an ICD implant without contraindication to beta-blockers.
Denominator Categories	Female; Male All Patients
Denominator Details	Time Window: 1 year
Exclusions	Procedure type = initial generator implant = yes or generator change = yes Generator type includes single chamber, dual chamber, and biventricular (CRT-D) ICD Previous MI = yes
Exclusion Details	• Patients who expired. • Beta-blocker therapy contraindicated or blinded. Contraindicated supporting definition: Medication was not prescribed because of a contraindication. Contraindications must be documented explicitly by the physician, or clearly evidenced within the medical record.

	1528 Beta blocker at discharge for ICD implant patients with a previous MI
	Blinded supporting definition: Patient was in research study or clinical trial and administration of this specific medication is unknown.
Risk Adjustment	N/A
Stratification	Discharge status = deceased Beta blocker (any) = contraindicated or blinded
Type Score	Rate/proportion
Algorithm	better quality = higher score

	1529 Beta blocker at discharge for ICD implant patients with LVSD
Steward	American College of Cardiology Foundation, 2400 N Street NW, Washington, DC 20037
Description	Proportion of ICD implant patients with a diagnosis of LVSD who are prescribed beta-blocker therapy on discharge.
Type	Process
Data Source	National Cardiovascular Data Registry (NCDR)® ICD RegistryTM http://www.ncdr.com/WebNCDR/ICD/ELEMENTS.ASPX URL http://www.ncdr.com/WebNCDR/ICD/ELEMENTS.ASPX URL http://www.ncdr.com/WebNCDR/ICD/ELEMENTS.ASPX
Level	Affects large numbers; Frequently performed procedure; Leading cause of morbidity/mortality; High resource use; Severity of illness.
Setting	Facility/Agency
Numerator Statement	Count of patients with beta blocker therapy prescribed on discharge.
Numerator Details	Time Window: 1 year discharge medication of beta blocker (any) = yes
Denominator Statement	Count of patients with an ICD implant with LVSD without contraindication to beta blockers
Denominator Categories	Female; Male All Patients
Denominator Details	Time Window: 1 year
Exclusions	Procedure type = initial generator implant = yes or generator change = yes Most recent LVEF<40%
Exclusion Details	• Patients who expired. • Beta blocker therapy contraindicated or blinded.
Risk Adjustment	N/A

	1529 Beta blocker at discharge for ICD implant patients with LVSD
Stratification	
Type Score	Rate/proportion
Algorithm	better quality = higher score

	0964 Therapy with aspirin, P2Y12 inhibitor and statin at discharge
Steward	American College of Cardiology Foundation, 2400 N. Street NW, Washington, DC 20037
Description	Patients undergoing PCI who receive prescriptions for all medications (aspirin, P2Y12 and satins) for which they are eligible for at discharge.
Type	Composite with component measures combined at patient level.
Data Source	Registry Data http://www.ncdr.com/WebNCDR/ELEMENTS.ASPX
Level	Facility
Setting	Hospital
Numerator Statement	Patients who receive all medications for which they are eligible. 1. Aspirin prescribed at discharge (if eligible for aspirin as described in denominator) AND 2. P2Y12 agent (clopidogrel, prasurgel, or ticlopidine) prescribed at discharge (if eligible for P2Y12 as described in denominator) AND 3. Statin prescribed at discharge (if eligible for statin as described in denominator).
Numerator Details	Time Window: 1 year Count of patients with PCI procedures with [((ASA=yes) AND (ASA not contraindicated or blinded) AND ((p2Y12=yes) AND (p2Y12 not contraindicated or blinded) AND (patient with PCI procedure with stents implanted)) AND ((statin=yes) and (statin not contraindicated or blinded))] AND [Discharge status=alive) AND (Discharge Location=home, extended care facility, nursing home, other)]
Denominator Statement	All patients surviving hospitalization who are eligible to receive any one of the three medication classes: 3. Eligible for aspirin (ASA): Patients undergoing PCI who do not have contraindication to aspirin documented OR 4. Eligibility for P2Y12 agent (clopidogrel, prasurgel, or ticlopidine): Patients undergoing PCI with stenting who do not have a contraindication to P2Y12 agent documented

	0964 Therapy with aspirin, P2Y12 inhibitor and statin at discharge
	OR 5. Eligibility for statin therapy: Patients undergoing PCI who do not have a contraindication to stain therapy.
Denominator Categories	Female and Male 18 years of age and older
Denominator Details	Time Window: 1 year Count of patients with PCI procedures with [(ASA not contraindicated or blinded) OR [((p2Y12 not contraindicated or blinded) AND (patient with PCI procedure with stents implanted)) OR (statin not contraindicated or blinded))]] AND [Discharge status=alive) AND (Discharge Location=home, extended care facility, nursing home, other)]
Exclusions	Discharge statue of expired; not eligible for aspirin, P2Y12, or statin (contraindicated or blinded to all 3 medications).
Exclusion Details	N/A
Risk Adjustment	
Stratification	N/A
Type Score	Non-weighted score/composite/scale better quality = Higher score
Algorithm	Denominator: Count of patients with PCI procedures with [(ASA not contraindicated or blinded) OR [((p2Y12 not contraindicated or blinded) AND (patient with PCI procedure with stents implanted)) OR (statin not contraindicated or blinded))]] AND [Discharge status=alive) AND (Discharge Location=home, extended care facility, nursing home, other)]

	0964 Therapy with aspirin, P2Y12 inhibitor and statin at discharge
	Numerator: Count of patients with PCI procedures with [((ASA=yes) AND (ASA not contraindicated or blinded) AND ((p2Y12=yes) AND (p2Y12 not contraindicated or blinded) AND (patient with PCI procedure with stents implanted)) AND ((statin=yes) and (statin not contraindicated or blinded))] AND [Discharge status=alive) AND (Discharge Location=home, extended care facility, nursing home, other)]

	0965 Patients with an ICD Implant who receive prescriptions for all medications (ACE/ARB and beta blockers) for which they are eligible for at discharge
Steward	American College of Cardiology Foundation, 2400 N. Street NW, Washington, DC 20037
Description	Proportion of patients with an ICD implant who receive prescriptions for all medications (ACE/ARB and beta blockers) for which they are eligible for at discharge (all-or-none composite measures of two medications classes).
Type	Composite with component measures combined at patient-level.
Data Source	Registry Data http://www.ncdr.com/WebNCDR/ELEMENTS.ASPX
Level	Facility
Setting	Hospital
Numerator Statement	Patients who receive all medications for which they are eligible. 1. ACE/ARB prescribed at discharge (if eligible for ACE/ARB as described in denominator) AND 2. Beta blockers prescribed at discharge (if eligible for beta blockers as described in denominator)
Numerator Details	Ti Count of ICD implants patients with [(ACE/ARB=yes) AND [(EF<40) AND (ACE/ARB not contraindicated or blinded)]] AND [[Beta blocker=yes) AND [(EF<40) AND/OR (previous MI)]] AND (beta blockers not contraindicated or blinded)] AND [Discharge status=alive) AND (Discharge Against Medical Advice=No)]
Denominator Statement	All patients with an ICD implant surviving hospitalization who are eligible to receive any of the two medication classes: 1. Eligible for ACE/ARB: Patients who have a ejection fraction (EF) of 40% AND do not have a documented contraindication to ACE/ARB documented OR 2. Eligibility for beta blockers: Patients who do not have documented contraindication to beta blocker therapy and have either: a. EF of 40% OR b. A previous myocardial infarction 9MI)
Denominator Categories	Female and Male 18 years of age and older

	0965 Patients with an ICD Implant who receive prescriptions for all medications (ACE/ARB and beta blockers) for which they are eligible for at discharge
Denominator Details	Time Window: 1 year Count of ICD implants patients with [(EF<40) AND (ACE/ARB not contraindicated or blinded)]] OR [(EF<40) AND/OR (previous MI)]] AND (beta blockers not contraindicated or blinded)] AND [Discharge status=alive) AND (Discharge Against Medical Advice=No)]
Exclusions	Discharge status of expired; not eligible for either ACE/ARB or beta blockers.
Exclusion Details	Medication prescribed at discharge coded as 'contraindicated" or 'blinded" for beta blocker or ACE/ARB. Discharge status = deceased.
Risk Adjustment	N/A
Stratification	N/A
Type Score	Non-weighted score/composite/scale better quality = Higher score
Algorithm	Denominator: Count of ICD implants patients with [(EF<40) AND (ACE/ARB not contraindicated or blinded)]] OR [(EF<40) AND/OR (previous MI)]] AND (beta blockers not contraindicated or blinded)] AND [Discharge status=alive) AND (Discharge Against Medical Advice=No)] Numerator: Count of ICD implants patients with [(ACE/ARB=yes) AND [(EF<40) AND (ACE/ARB not contraindicated or blinded)]] AND [[Beta blocker=yes) AND [(EF<40) AND/OR (previous MI)]] AND (beta blockers not contraindicated or blinded)] AND [Discharge status=alive) AND (Discharge Against Medical Advice=No)]

APPENDIX B—NATIONAL VOLUNTARY CONSENSUS STANDARDS: CARDIOVASCULAR ENDORSEMENT MAINTENANCE 2010 STEERING COMMITTEE AND NQF STAFF

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APPENDIX C—ENDORSED CARDIOVASCULAR CONSENSUS STANDARDS (AFTER 2008)

Coronary Artery Disease (CAD)—Secondary Prevention

Measure Number	Title	Description	Measure Steward
0543	Coronary artery disease and medication possession ratio for statin therapy	Medication Possession Ratio (MPR) for statin therapy for individuals over 18 years of age with coronary artery disease.	Centers for Medicare & Medicaid Services
0551	ACE inhibitor/angiotensin receptor blocker use and persistence among members with coronary artery disease at high risk for coronary events	To assess the use of and persistence to ACE inhibitors or angiotensin receptor blockers (ARBs) among members with CAD or other atherosclerotic vascular disease (i.e., peripheral arterial disease, atherosclerotic aortic disease and carotid artery disease) who are at high risk for coronary events during a one-year period. High-risk comorbidities are defined as heart failure, hypertension, diabetes, or chronic kidney disease (excluding stage V and patients on dialysis).	Health Benchmarks, Inc, IMS Health
0569	Adherence to lipid lowering medication	To ensure that members who are taking medications to treat hyperlipidemia filled an adequate supply of medications over a predefined time period.	Health Benchmarks, Inc, IMS Health
0583	Dyslipidemia new med 12-week lipid test	This measure identifies patients age 18 or older who started lipid-lowering medication during the measurement year and had a lipid panel checked within 3 months after starting drug therapy.	Resolution Health, Inc.
0594	Post MI: ACE inhibitor or ARB therapy	This measure identifies patients with ST elevation MI (STEMI), or non-ST elevation MI (NSTEMI) plus a history of hypertension, heart failure, and/or diabetes prior to the measurement year	Resolution Health, Inc.

		who are taking an ACEI or an ARB during the measurement year.	
0611	Hyperlipidemia (primary prevention)—lifestyle changes and/or lipid lowering therapy	Percentage of patients with coronary artery disease risk factors who have an elevated LDL and who have initiated therapeutic lifestyle changes or are taking a lipid-lowering agent	ActiveHealth Management
0613	MI—use of beta blocker therapy	Percentage of patients who had a myocardial infarction (MI) and are taking a beta blocker.	ActiveHealth Management
0616	Atherosclerotic disease—lipid panel monitoring	Percentage of patients with coronary artery, cerebrovascular, or peripheral vascular disease that have been screened for dyslipidemia with a lipid profile.	ActiveHealth Management
0631	Secondary prevention of cardiovascular events—use of aspirin or antiplatelet therapy	Percentage of patients with ischemic vascular disease (IVD) that are taking aspirin or an antiplatelet agent.	ActiveHealth Management
0636	Atherosclerotic disease and LDL greater than 100—use of lipid lowering agent	Percentage of adult patients with atherosclerotic disease and an LDL greater than 100 that are taking a lipid lowering agent.	ActiveHealth Management

Acute Myocardial Infarction (AMI)—Emergency Department

660	Troponin results for emergency department acute myocardial infarction (AMI) patients or chest pain patients (with probable cardiac chest pain) received within 60 minutes of arrival	Emergency Department acute myocardial infarction (AMI) patients or chest pain patients (with Probable Cardiac Chest Pain) with an order for Troponin during the stay and having a time from ED arrival to completion of Troponin results within 60 minutes of arrival.	Centers for Medicare & Medicaid Services

Acute Myocardial Infarction (AMI)—Hospital

0639	Statin prescribed at discharge	Percent of acute myocardial infarction (AMI) patients 18 years of age or older who are prescribed a statin medication at hospital discharge.	Centers for Medicare & Medicaid Services
704	Proportion of AMI patients that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge period)	Percent of adult population aged 18-65 years who were admitted to a hospital with acute myocardial infarction (AMI), were followed for one month after discharge, and had one or more potentially avoidable complications (PACs).	Bridges to Excellence
730	Acute myocardial infarction (AMI) mortality rate	Number of deaths per 100 discharges with a principal diagnosis code of acute myocardial infarction.	Agency for Healthcare Research and Quality
0505	Thirty-day all-cause risk standardized readmission rate following acute myocardial infarction (AMI) hospitalization.	Hospital-specific 30-day all-cause risk standardized readmission rate following hospitalization for AMI among Medicare beneficiaries aged 65 years or older at the time of index hospitalization.	Centers for Medicare & Medicaid Services
698	30-day post-hospital AMI discharge care transition composite measure	This measure scores a hospital on the incidence among its patients during the month following discharge from an inpatient stay having a primary diagnosis of heart failure for three types of events: readmissions, ED visits, and evaluation and management (E&M) services.	Centers for Medicare & Medicaid Services
Percutaneous Coronary Interventions (PCI)			
0588	Stent drug-eluting clopidogrel	This measure identifies patients undergoing percutaneous coronary intervention (PCI) with placement of a drug-eluting intracoronary stent during the first 9 months of the measurement year, who filled a prescription for clopidogrel in the 3 months	Resolution Health, Inc.

		following stent placement.	
695	Hospital 30-day risk-standardized readmission rates following percutaneous coronary intervention (PCI)	This measure estimates hospital risk-standardized 30-day readmission rates following PCI in patients at least 65 years of age. As PCI patients may be readmitted electively for staged revascularization procedures, we will exclude such elective readmissions from the measure. The measure uses clinical data available in the National Cardiovascular Disease Registry (NCDR) CathPCI Registry for risk adjustment that has been linked with the administrative claims data used to identify readmissions.	Centers for Medicare & Medicaid Services
0536	30-day all-cause risk-standardized mortality rate following percutaneous coronary intervention (PCI) for patients with ST segment elevation myocardial infarction (STEMI) or cardiogenic shock	Hospital-specific 30-day all-cause risk-standardized mortality rate following Percutaneous Coronary Intervention (PCI) among patients aged 18 years or older with ST segment elevation myocardial infarction (STEMI) or cardiogenic shock at the time of procedure.	Centers for Medicare & Medicaid Services
0535	30-day all-cause risk-standardized mortality rate following percutaneous coronary intervention (PCI) for patients without ST segment elevation myocardial infarction (STEMI) and without cardiogenic shock	Hospital-specific 30-day all-cause risk-standardized mortality rate following Percutaneous Coronary Intervention (PCI) among patients aged 18 years or older without ST segment elevation myocardial infarction (STEMI) and without cardiogenic shock at the time of procedure.	Centers for Medicare & Medicaid Services
0355	Bilateral cardiac catheterization rate (IQI 25)	Percent of discharges with heart catheterizations in any procedure field with simultaneous right and left heart (bilateral)	Agency for Healthcare Research and

		heart catheterizations.	Quality
Cardiac Imaging			
669	Cardiac imaging for preoperative risk assessment for non-cardiac low-risk surgery	This measure calculates the percentage of low-risk, non-cardiac surgeries performed at a hospital outpatient facility with a Stress Echocardiography, SPECT MPI or Stress MRI study performed in the 30 days prior to the surgery at a hospital outpatient facility (e.g., endoscopic, superficial, cataract surgery, and breast biopsy procedures). Results are to be segmented and reported by hospital outpatient facility where the imaging procedure was performed.	Centers for Medicare & Medicaid Services
670	Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients	Percentage of stress SPECT MPI, stress echo, CCTA, or CMR performed in low risk surgery patients for preoperative evaluation.	American College of Cardiology Foundation
671	Cardiac stress imaging not meeting appropriate use criteria: routine testing after percutaneous coronary interventions (PCI)	Percentage of all stress SPECT MPI, stress echo, CCTA and CMR performed routinely after PCI, with reference to timing of test after PCI and symptom status.	American College of Cardiology Foundation
672	Cardiac stress imaging not meeting appropriate use criteria: testing in asymptomatic, low risk patients	Percentage of all stress SPECT MPI, stress echo, CCTA, and CMR performed in asymptomatic, low CHD risk patients for initial detection and risk assessment	American College of Cardiology Foundation
Cardiac Rehabilitation			
0642	Cardiac rehabilitation patient referral from an inpatient setting	Percentage of patients admitted to a hospital with a primary diagnosis of an acute myocardial infarction or chronic stable angina or who during hospitalization have undergone coronary	ACCF/AHA Task Force on Performance

		artery bypass (CABG) surgery, a percutaneous coronary intervention (PCI), cardiac valve surgery (CVS), or cardiac transplantation who are referred to an early outpatient cardiac rehabilitation/secondary prevention program.	Measures
0643	Cardiac rehabilitation patient referral from an outpatient setting	Percentage of patients evaluated in an outpatient setting who in the previous 12 months have experienced an acute myocardial infarction or chronic stable angina or who have undergone coronary artery bypass (CABG) surgery, a percutaneous coronary intervention (PCI), cardiac valve surgery (CVS), or cardiac transplantation, who have not already participated in an early outpatient cardiac rehabilitation/secondary prevention program for the qualifying event, and who are referred to an outpatient cardiac rehabilitation/secondary prevention program.	ACCF/AHA Task Force on Performance Measures
Atrial Fibrillation			
0600	New atrial fibrillation: Thyroid function test	This measure identifies patients with new-onset atrial fibrillation during the measurement year who have had a thyroid function test 6 weeks before or after the diagnosis of atrial fibrillation.	Resolution Health, Inc.
0624	Atrial fibrillation—warfarin therapy	Percentage of adult patients with atrial fibrillation and major stroke risk factors on warfarin.	ActiveHealth Management
0578	Ambulatory initiated amiodarone therapy: TSH test	This measure identifies the percentage of patients who had a TSH baseline measurement at the start of amiodarone therapy.	Resolution Health, Inc.
ICD Implants			
694	Hospital risk-standardized complication rate following implantation of implantable cardioverter-defibrillator (ICD)	This measure provides hospital specific risk-standardized rates of procedural complications following the implantation of an ICD in patients at least 65 years of age. The measure uses clinical data available in the National Cardiovascular Data Registry (NCDR) ICD Registry for risk adjustment that has been linked	Centers for Medicare & Medicaid Services

		with administrative claims data used to identify procedural complications.	
Hypertension			
0605	Patient(s) that had a serum creatinine in last 12 reported months	This measure identifies patients with hypertension (HTN) that had a serum creatinine in last 12 reported months.	Ingenix
Heart Failure—Hospital			
699	30-day post-hospital HF discharge care transition composite measure	This measure scores a hospital on the incidence among its patients during the month following discharge from an inpatient stay having a primary diagnosis of heart failure for three types of events: readmissions, ED visits, and evaluation and management (E&M) services.	Centers for Medicare & Medicaid Services
0358	Congestive heart failure mortality (IQI 16) (risk adjusted)	Percent of in-hospital death for discharges, 18 years and older, with ICD-9-CM principle diagnosis code of CHF.	Agency for Healthcare Research and Quality
0330	30-day all-cause risk standardized readmission rate following heart failure hospitalization (risk adjusted)	Hospital-specific, risk-standardized, 30-day all-cause readmission rates for Medicare fee-for-service patients discharged from the hospital with a principal diagnosis of heart failure (HF).	Centers for Medicare & Medicaid Services
Heart Failure—Outpatient			
0521	Heart failure symptoms addressed	Percent of patients exhibiting symptoms of heart failure for whom appropriate actions were taken.	Centers for Medicare & Medicaid Services
0610	Heart failure—use of ACE inhibitor (ACEI) or angiotensin	Percentage of patients with heart failure that are on an ACEI or ARB.	ActiveHealth Management

	receptor blocker (ARB) therapy		
0615	Heart failure—use of beta blocker therapy	Percentage of adult patients with heart failure that are on a beta blocker.	ActiveHealth Management

APPENDIX D—GAPS IN THE CARDIOVASCULAR PORTFOLIO

The measures in the cardiovascular portfolio have been assigned to appropriate domains reflecting the priorities and goals of NQF, the National Priorities Partnership, and the National Quality Strategy. Large gaps in the areas of patient and family engagement and patient-reported outcomes persist. Additional measures are needed to address access and affordability.

Cardiovascular **TOPIC AREA**	DOMAINS							
	Cross-Cutting **including across settings, disciplines, populations, & combinations** **Composites** **Emphasis on longitudinal measures**	**Care Coordination & Management** **including communication,** **pre-, intra-, post-op care; secondary prevention; intermediate outcomes, recovery & rehabilitation, end-of-life care**	**Population Health** **including prevention, healthfullifestyle behaviors, populations at risk & disparities** (age, race/ ethnicity, gender, geographic & socio-economic)	**Safety** **including morbidity & mortality, complications of care, prevention of adverse events including HAI, medication adherence/use**	**Affordability** **including cost/ efficiency** direct/indirect cost, overuse, underuse, appropriateness	**Access** **including access, timeliness**	**Patient & Family Engagement** **including** **Patient/ Family Engagement** (perspective, knowledge, understanding, motivation, risk behavior), **Satisfaction, Self-management, Shared Decision making**	**Patient-Reported Outcomes** **including Health Status** (quality of life, functional status, productivity, burden on patient & family)
Coronary Artery Disease (CAD)—Secondary Prevention								
0073 IVD: Blood pressure management		X	X	X				
0068 IVD: Use of aspirin or antithrombotics		X		X				
0067 CAD: Antiplatelet therapy		X		X				
0631 Secondary prevention of cardiovascular Events—Use of Aspirin or Antiplatelet Therapy		X		X				
0611 Hyperlipidemia (primary prevention) — lifestyle changes and/or lipid lowering Therapy		X		X				
0583 Dyslipidemia new med 12-week lipid test		X		X				
0569 Adherence to lipid-lowering medication		X		X				
0543 Coronary artery disease and medication possession ratio for statin therapy		X		X				
0075 IVD—Complete lipid profile and LDL control <100		X		X				

Cardiovascular TOPIC AREA	DOMAINS							
	Cross-Cutting **including across settings, disciplines, populations, & combinations** **Composites** **Emphasis on longitudinal measures**	**Care Coordination & Management** **including communication,** **pre-, intra-, post-op care; secondary prevention; intermediate outcomes, recovery & rehabilitation, end-of-life care**	**Population Health** **including prevention, healthfullifestyle behaviors, populations at risk & disparities** (age, race/ ethnicity, gender, geographic & socio-economic)	**Safety** **including morbidity & mortality, complications of care, prevention of adverse events including HAI, medication adherence/use**	**Affordability** **including cost/ efficiency** direct/indirect cost, overuse, underuse, appropriateness	**Access** **including access, timeliness**	**Patient & Family Engagement** **including** **Patient/ Family Engagement** (perspective, knowledge, understanding, motivation, risk behavior), **Satisfaction, Self-management, Shared Decision making**	**Patient-Reported Outcomes** **including Health Status** (quality of life, functional status, productivity, burden on patient & family)
0074 Chronic stable coronary artery disease: lipid control		X	X	X				
0616 Atherosclerotic disease—lipid panel monitoring		X						
0636 Atherosclerotic disease and LDL greater than 100—use of lipid lowering agent		X	X	X				
0066 CAD: ACEI/ARB therapy		X		X				
0551 ACE inhibitor/angiotensin receptor Blocker Use and Persistence Among Members with Coronary Artery Disease at High Risk for Coronary Events		X		X				
0594 Post MI: ACE inhibitor or ARB therapy		X		X				
0071 AMI—Persistence of beta blocker therapy		X		X				
0613 MI—Use of beta blocker therapy		X		X				
0076 - Optimal vascular care		X	X	X				

Cardiovascular TOPIC AREA	DOMAINS							
	Cross-Cutting **including across settings, disciplines, populations, & combinations** **Composites** **Emphasis on longitudinal measures**	**Care Coordination & Management** **including communication,** **pre-, intra-, post-op care; secondary prevention; intermediate outcomes, recovery & rehabilitation, end-of-life care**	**Population Health** **including prevention, healthfullifestyle behaviors, populations at risk & disparities** (age, race/ ethnicity, gender, geographic & socio-economic)	**Safety** **including morbidity & mortality, complications of care, prevention of adverse events including HAI, medication adherence/use**	**Affordability** **including cost/ efficiency** direct/indirect cost, overuse, underuse, appropriateness	**Access** **including access, timeliness**	**Patient & Family Engagement** **including** **Patient/ Family Engagement** (perspective, knowledge, understanding, motivation, risk behavior), **Satisfaction, Self-management, Shared Decision making**	**Patient-Reported Outcomes** **including Health Status** (quality of life, functional status, productivity, burden on patient & family)
Acute Myocardial Infarction (AMI) — Emergency Department								
0289 Median to ECG				X		X		
0660 Troponin results for emergency department acute myocardial infarction (AMI) patients or chest pain patients (with probable cardiac chest pain) received within 60 minutes of arrival		X		X				
0132 Aspirin at arrival for AMI		X		X				
0286 Aspirin at arrival		X		X				
0163 Primary PCI within 90 minutes of arrival		X		X		X		
0164 Fibrinolytic therapy received within 30 minutes		X		X		X		
0288 Fibrinolytic therapy received within 30 minutes of ED arrival		X		X		X		
0287 Median time to fibrinolysis		X		X		X		
0290 Median time to transfer to another facility		X				X		

Cardiovascular TOPIC AREA	DOMAINS							
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AMI —Hospital								
0160 Beta blocker prescribed at discharge		X		X				
0142 Aspirin prescribed at discharge for AMI		X		X				
0137 ACEI/ARB at discharge for AMI		X		X				
0639 Statin prescribed at discharge		X		X				
0704 Proportion of AMI patients that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge period)		X		X				
0730 Acute myocardial infarction (AMI) mortality rate [in patient]		X		X				
0230 AMI 30-day mortality		X		X				
0505 Thirty-day all-cause risk standardized readmission rate following acute myocardial infarction (AMI) hospitalization.		X						
0698 30-day post-hospital AMI discharge care transition composite measure		X		X				

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Percutaneous Coronary Interventions (PCI)								
0588 Stent drug-eluting clopidogrel		X						
0964 Therapy with aspirin, P2Y12 inhibitor and statin at discharge		X		X				
0695 Hospital 30-day risk-standardized readmission rates following percutaneous coronary intervention (PCI)		X						
0535 30-day all-cause risk-standardized mortality rate following percutaneous coronary intervention (PCI) for patients without ST segment elevation myocardial infarction (STEMI) and without cardiogenic shock		X		X				
0536 30-day all-cause risk-standardized mortality rate following Percutaneous Coronary Intervention (PCI) for patients with ST segment elevation myocardial infarction (STEMI) or cardiogenic shock		X		X				
0734 30-day all cause risk-standardized percutaneous coronary intervention (PCI) mortality rate for patients with ST segment elevation myocardial infarction (STEMI) or cardiogenic shock		X		X				
0355 Bilateral cardiac catheterization rate (IQI 25)					X			

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Cardiac Imaging								
0669 Cardiac imaging for preoperative risk assessment for non-cardiac low-risk surgery		X						
0670 Cardiac stress imaging not meeting appropriate use criteria: preoperative evaluation in low risk surgery patients					X			
0671 Cardiac stress imaging not meeting appropriate use criteria: routine testing after percutaneous coronary interventions (PCI)					X			
0672 Cardiac stress imaging not meeting appropriate use criteria: testing in asymptomatic, low risk patients					X			
Cardiac Rehabilitation								
0642 Cardiac rehabilitation patient referral from an inpatient setting		X						
0643 Cardiac rehabilitation patient referral from an outpatient setting		X						

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Atrial Fibrillation								
0600 New atrial fibrillation: Thyroid function test		X						
1524 Assessment of thromboembolic risk factors (CHADS 2)		X		X				
1525 Chronic anticoagulation therapy		X		X				
0624 Atrial fibrillation—warfarin therapy		X		X				
0578 Ambulatory initiated amiodarone therapy: TSH test		X		X				
ICD Implants								
1522 ACE/ARB therapy at discharge for ICD implant patients with LVSD		X		X				
1528 Beta blocker at discharge for ICD implant patients with a previous MI		X		X				
1529 Beta blocker at discharge for ICD implant patients with LVSD		X		X				
0965 Therapy with ACE/ARB and beta blocker at discharge following ICD implantation		X		X				
0694 Hospital risk-standardized complication rate following implantation of implantable cardioverter-defibrillator (ICD)	X	X		X				

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Hypertension								
0605 Patient(s) that had a serum creatinine in last 12 reported months.		X						
0018 Controlling high blood pressure		X	X	X				
Heart Failure—Hospital								
0135 Evaluation of left ventricular systolic dysfunction		X						
0162 ACEI or ARB for left ventricular		X		X				
0358 Congestive heart failure mortality (IQI 16) (risk adjusted)		X		X				
0229 Hospital 30-day, all-cause, risk standardized mortality rate (RSMR) following heart failure hospitalization		X		X				
0330 30-day, all-cause risk standardized readmission rate following heart failure hospitalization (risk adjusted)		X	X	X				
0699 30-day post-hospital HF discharge care transition composite measure		X		X				

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Heart Failure—Outpatient								
0521 Heart failure symptoms addressed		X						
0079 Heart failure: left ventricular ejection fraction assessment (outpatient setting)		X						
0081 Heart failure: ACEI or ARB therapy for left ventricular systolic dysfunction		X		X				
0610 Heart failure—use of ACE inhibitor (ACEI) or angiotensin receptor blocker (ARB) therapy		X		X				
0083 Heart failure: Beta-blocker therapy for left ventricular systolic dysfunction		X		X				
0615 Heart failure—use of beta blocker Therapy		X		X				