NATIONAL QUALITY FORUM

IN-PERSON MEETING OF THE CARDIOVASCULAR ENDORSEMENT MAINTENANCE, PHASE II STEERING COMMITTEE

April 7-8, 2011

Committee Members Present: Mary George, MD, MSPH (Co-chair); Raymond Gibbons, MD (Co-chair); Carol Allred, RN; Rochelle Ayala, MD, FACP; Leslie Cho, MD; Dianne Jewell, PT, DPT, PhD, CCS; Dana King, MD, MS; Bruce Koplan, MD, MPH; Thomas Kottke, MD, MSPH; David Magid, MD, MPH; George Philippides, MD, FACC; Jon Rasmussen, PharmD; Devorah Rich, PhD; Andrea Russo, MD; Mark Sanz, MD; Sidney Smith, Jr., MD; Roger Snow, MD, MPH; Christine Stearns, JD, MS; Kathleen Szumanski, MSN, RN, NE-BC; Suma Thomas, MD, FACC

NQF Staff Present: Helen Burstin, MD, MPH (Senior Vice President, Performance Measures); Karen Pace, PhD, RN (Senior Director, Performance Measures); Heidi Bossley, MSN, MBA (Managing Director of Consensus Development Process); Reva Winkler, MD, MPH (Project Senior Advisor); Ashley Morsell, MPH (Project Manager); Kathryn Streeter, MS (Project Manager); Tenee Davenport, (Research Analyst)

Others Present: Sana Al-Khatib, MD, MHS; Susannah Bernheim, MD; Laura Blum; John Bott, MSSW, MBA; Jensen Chiu, MHA; Del Conyers; Sheryl Davies, MA; Joseph Drozda, MD; Mark Estes III, MD, FACC; Susan Fitzgerald, RN, MBA; Jeffrey Geppert, EdM, JD; Jonathan Halperin, MD; Frederick Masoudi, MD, MSPH; Greg Pawlson, MD, MPH; Patrick Romano, MD, MPH; Kay Schwebke, MD; Melanie Shahriary, RN, BSN

The full transcripts and audio recordings from the meeting can be found on the project webpage.

MEETING PROCESS

Dr. Gibbons, Dr. George, and Dr. Winkler welcomed the Cardiovascular Steering Committee members and thanked them for their participation. None of the Committee members disclosed new involvement with the measures to be evaluated in this project since the February meeting.

EVALUATION OF CARDIOVASCULAR MEASURES

The Cardiovascular Steering Committee evaluated 10 new measures and 14 measures undergoing maintenance review using the National Quality Forum's (NQF's) standard evaluation criteria. To facilitate the evaluation, the committee and candidate standards were divided into four groups for preliminary review of the subcriteria. Ratings for the subcriteria were collected from each group prior to the meeting using a Survey Monkey tool and were provided to the entire Committee during discussion.

Many of the measures under review were very similar. The Committee was again advised that the evaluation would proceed step-wise:

- evaluate against the criteria and determine whether an individual measure meets the criteria for endorsement;

- identify competing measures and select "best in class";
- harmonize related measures; and
- make final recommendations.

The Measures

Summaries of the reviewed measures' evaluation of measures, along with the Committee's votes and rationale are presented in the tables below. Questions to and answers from the measure developers are also included.

Atrial Fibrillation

- 1524 Assessment of thromboembolic risk
- 1525 Chronic anticoagulation therapy
- 1505 Adult patients with atrial fibrillation taking amiodarone that had serum ALT or AST test in last reported 12 months

ICD Implants

- 1530 Prophylactic antibiotics prior to ICD (lead or implant) procedure
- 1522 ACE/ARB therapy at discharge for ICD implant patients with LVSD
- 1528 Beta blocker at discharge for ICD implant patients with a previous MI
- 1529 Beta blocker at discharge for ICD implant patients with LVSD
- 0965 Therapy with ACE/ARB and beta blocker at discharge following ICD implantation

Hypertension

- 0018 Controlling high blood pressure
- 0013 Hypertension: Blood pressure control
- 0276 Hypertension (PQI 7)

Heart Failure—hospital

- 0135 Evaluation of left ventricular systolic dysfunction
- 0162 ACEI or ARB for left ventricular
- 0136 Heart failure: Detailed discharge instructions
- 0358 Heart failure in-patient mortality
- 0277 CHF admission (PQI 8)
- 0229 Hospital 30-day, all-cause, risk standardized mortality rate (RSMR) following heart failure hospitalization
- 0330 30-day, all-cause risk standardized readmission rate following heart failure hospitalization (risk adjusted)
- 962 Composite measure of hospital quality for heart failure

Heart Failure—outpatient

- 0077 Heart failure: Symptom and activity assessment
- 0079 Heart failure: Left ventricular ejection fraction assessment (outpatient setting)
- 0081 Heart failure: ACEI or ARB therapy for left ventricular systolic dysfunction
- 0083 Heart failure: Beta-blocker therapy for left ventricular systolic dysfunction

Overarching Issues

During the Steering Committee's discussion of the measures, several overarching issues emerged and were discussed.

Related and Competing Measures

The Committee began a discussion of competing and related measures from Phase 1. NQF guidance for evaluating related and competing measures was provided. 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. In the discussion of measures of secondary prevention for coronary artery disease and ischemic vascular disease, the Committee suggested that measure 0076 Optimal vascular care, rather than multiple individual measures for secondary prevention, would efficiently address measurement in this area. Realizing that such a recommendation would have important ramifications for NQF's portfolio of measures and its users, the Committee requested an analysis of the pros and cons of such a recommendation. NQF staff will provide this analysis at the next conference call.

Disparities

The Committee noted that the measure submissions provided disparities data more than seen in Phase I. The Committee recommended that disparities data be distributed and published more widely and specifically recommend that the Centers for Medicare & Medicaid Services (CMS) include disparities data on Hospital Compare.

MEASURE EVALUATIONS

Atrial Fibrillation

LEGEND: Y = Yes; N = No; C = Completely; P = Partially; M = Minimally; N = Not at all

1524 Assessment of thromboembolic risk factors
Description: Patients with nonvavular atrial fibrillation or atrial flutter in whom assessment of thromboembolic risk factors 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

1524 Assessment of thromboembolic risk factors

- 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:
  - Allergy to warfarin
  - Risk of bleeding

Adjustment/Stratification: No risk adjustment necessary None
Level of Analysis:
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 Recommendation 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)".

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.

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)
Rationale:

- Vague title. Steering Committee recommended changing to be more specific.
- 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..

1525 Chronic anticoagulation therapy

Description: Prescription of warfarin for all patients with nonvalvular atrial fibrillation or atrial flutter at high risk for thromboembolism
Numerator Statement: All patients with nonvalvular atrial fibrillation (AF) or atrial flutter at high risk of thromboembolism (i.e., those with any high-risk factor or more than one moderate-risk factor) for whom warfarin was prescibed

1525 Chronic anticoagulation therapy

Low risk: No risk factors; Asprin 81 to 325 mg daily
Intermediate risk: One moderate-risk factor; Aspirin 81 mg to 325 mg daily or warfarin (INR 2.0 to 3.0, target 2.5)
High risk: Any high-risk factor or more than 1 moderate-risk factor; Warfarin (INR 2.0 to 3.0, target 2.5)
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 (e.g., economic, social, and/or religious impediments, noncompliance or other reason for refusal to take warfarin)

Adjustment/Stratification: No risk adjustment necessary N/A None
Level of Analysis:
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 Recommendation 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. 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.

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 consisistent with previous measure 1524.
- Second vote with conditions set by Steering Committee (as submitted in addition to the following): 1) Include CHADS2 in specifications. 2) Numerator to include “other FDA-approved drugs”. 3) Exclusions include patient or physician preference reason for alternative treatment.

1525 Chronic anticoagulation therapy

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.

1505 Adult patient(s) with atrial fibrillation taking amiodarone that had serum ALT or AST test in last 12 reported months

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, G0179-

1505 Adult patient(s) with atrial fibrillation taking amiodarone that had serum ALT or AST test in last 12 reported months
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 Recommendation for Endorsement: Not recommended Rationale: This measure did not pass Importance to Measure and Report.
If applicable, Conditions/Questions for Developer:
1. Importance to Measure and Report: Y-1; N-17 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • Too narrow; 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.

Implantable Cardioverter Defibrillator (ICD)

1530 Prophylactic antibiotics prior to ICD (lead or implant) procedure
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 Recommendation 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:
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.

1522 ACE/ARB therapy at discharge for ICD implant patients with LVSD

1522 ACE/ARB therapy at discharge for ICD implant patients with LVSD
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 Recommendation for Endorsement: Y-19; N-0; A-0 Rationale: • Recommend an all-or-none composite for medications. • 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.
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.

1528 Beta Blocker at discharge for ICD implant patients with a previous MI
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: Procedure type=initial generator implant=yes or generator change=yes Previous MI=yes Adjustment/Stratification: N/A Discharge status=deceased Beta blocker (any)=contraindicated or blinded

1528 Beta Blocker at discharge for ICD implant patients with a previous MI

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: Registry data
Measure Steward: American College of Cardiology Foundation (ACCF), 2400 N Street NW, Washington, DC 20037

Steering Committee Recommendation 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:
Developer Response:

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. Unclear what the data is.

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:

- 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.

1529 Beta blocker at discharge for ICD implant patients with LVSD

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

1529 Beta blocker at discharge for ICD implant patients with LVSD

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 Recommendation 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.
- Recommended an all-inclusive measure for beta blockers.

If applicable, Conditions/Questions for Developer:
Developer Response:

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:

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

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

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

Measure Steward: American College of Cardiology Foundation, 2400 N Street NW, Washington, DC 20037

Steering Committee Recommendation for Endorsement: Y-20; N-0; A-0

Rationale:

- All or none composite.

If applicable, Conditions/Questions for Developer:

Developer Response:

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.

Hypertension

0018 Controlling high blood pressure

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

Measure Steward: National Committee for Quality Assurance, 1100 13th Street NW, Suite 1000, Washington, DC 20005

Steering Committee Recommendation for Endorsement: Y-19; N-0; A-0

0018 Controlling high blood pressure

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.

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.
- 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.

0013 Hypertension: Blood pressure control

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)

0013 Hypertension: Blood pressure control

- 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 Recommendation for Endorsement: Y-6; N-14; A-0
Rationale:

- Lack of evidence for two or more drugs component.
- Reliablity and validdity 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".

Steering Committee Follow-up:
Developer Follow-up:

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)
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.

0276 Hypertension admission rate (PQI 7)

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.

0276 Hypertension admission rate (PQI 7)

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 Recommendation 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?
Developer Response: Intended to describe population health; designed for use at the geographic area level.

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 admitted for many reasons (CHF, AMI, stroke). Only hypertension as primary diagnosis is captured.
- Could be missing an important population..

0135 Evaluation of left ventricular systolic function (LVS)

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 Recommendation for Endorsement: Y-5; N-13; A-0
Rationale:

- Current high performance. Possibly candidate for "topped out" category.

0135 Evaluation of left ventricular systolic function (LVS)

- 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:
Developer Response:

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 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.

0162 ACEI or ARB for left ventricular systolic dysfunction—Heart failure (HF) patients

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: 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

0162 ACEI or ARB for left ventricular systolic dysfunction—Heart failure (HF) patients

- 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 Recommendation 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:
Developer Response:

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.

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:

- Patient with a missing LVSD value is 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)
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.

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

0136 Heart Failure (HF): Detailed discharge instructions

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

Steering Committee Recommendation for Endorsement: Do not recommend
Rationale: Did not pass Importance Criteria.

If applicable, Conditions/Questions for Developer:
Developer Response:

1. Importance to Measure and Report: Y-4; N-16
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale:

- Evidence lacking for relationship to outcomes.
- Literacy level is not addressed.
- There is no assessment of whether the instructions were reviewed with the patient and that the patients had good unerstanding of the instructions..

0358 Congestive heart failure (CHF) mortality rate (IQI 16)

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 Recommendation 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.

0358 Congestive heart failure (CHF) mortality rate (IQI 16)

- Disparities information presented.

If applicable, Conditions/Questions for Developer: The information in the submission is outdated—there must be more current information.
Developer Response:

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 would like to see the submission form cleaned up and more recent data included. Citations for evidence under high impact are 20 years old.

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.
- Disparities information.

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.

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.

0277 Congestive heart failure admission rate (PQI 8)

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 Recommendation 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:

0277 Congestive heart failure admission rate (PQI 8)

Developer Response:

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.
- Concern that use of the measure may create perverse incentives to improve performance by reducing admissions without truly 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
(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.

0229 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following heart failure (HF) hospitalization

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 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 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.
The cohort includes admissions for Medicare FFS beneficiaries age 65 years or older 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: The measures exclude 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);
- 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 (because it is likely these patients are continuing to seek comfort measures only);
- 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.

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 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: 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 are:

Demographic
- Age-65 (years above 65, continuous)
- 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

0229 Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following heart failure (HF) hospitalization

- Chronic liver disease

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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. Results of this measure will not be stratified.

Level of Analysis: Facility/Agency

Type of Measure: Outcome

Data Source: Electronic administrative data/claims

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

Steering Committee Recommendation for Endorsement: Y-17; N-1; A-0

Rationale:

- A detailed, comprehensive submission form demonstrates that the measure meets all the criteria.
- Published in the literature.
- In use and publicly reported.

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?

Developer Response: Disparities at the hospital level haven't been seen in facilities with higher percentages of African-American patients.

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

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:

- 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.

3. Usability: C-17; 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:

- 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.

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:

- Measure is in use and publicly reported.
- Uses administrative data.

0330 Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization

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).

0330 Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization

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.

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 exclusions to the patient cohort.

The cohort includes admissions for Medicare fee-for-service (FFS) beneficiaries age 65 years or older 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: We excluded 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 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: 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 are:

Demographic

- Age-65 (years above 65, continuous)
- Male

Cardiovascular

- History of CABG
- Cardio-respiratory failure or shock
- Congestive heart failure
- Acute coronary syndrome

0330 Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization

- 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

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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. Results of this measure will not be stratified.

Level of Analysis: Facility/Agency

Type of Measure: Outcome

Data Source: Electronic administrative data/claims

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

Steering Committee Recommendation for Endorsement: Y-20; N-0; A-0

Rationale:

- High readmission rates—20% within 30 days; 50% within 1 years
- Significant variation
- Addresses all criteria

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.

0330 Hospital 30-day, all-cause, risk-standardized readmission rate following heart failure hospitalization

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

2. Scientific Acceptability of Measure Properties: C-18; 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.
- Disparities information should be publicly disclosed on Hospital Compare.
- Stratified analyses is done instead of controlling for socioeconomic status.

3. Usability: C-18; 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..

4. Feasibility: C-18; 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.

962 Composite measure of hospital quality for heart failure (HF)

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 Recommendation 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.

962 Composite measure of hospital quality for heart failure (HF)

- 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 ourcome measures (mortality and readmissions) are Medicare only.
- Weighting should be by impact.

If applicable, Conditions/Questions for Developer:
Developer Response:

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.

0077 Heart failure: Symptom and activity assessment

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:
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 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.

If applicable, Conditions/Questions for Developer:
Developer Response:

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.
- Testing results not included with submission.

0079 Heart failure: Left ventricular ejection fraction assessment (outpatient setting)

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

0079 Heart failure: Left ventricular ejection fraction assessment (outpatient setting)

*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:
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 Recommendation 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.
Developer Response:

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 needed 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:

- 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.

0081 Heart Failure: Angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy for left ventricular systolic dysfunction

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:

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 Recommendation 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).

Developer Response: The intent is to really enhance care on the outpatient side, looking at individual clinicians on the outpatient performance.

Steering Committee Follow-up:

Developer Follow-up:

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.
- 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)

0081 Heart Failure: Angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy for left ventricular systolic dysfunction

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.

0083 Heart failure: Beta-blocker therapy for left ventricular systolic dysfunction

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:
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 Recommendation 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?
Developer Response: We have to talk about patient reasons for exclusion as well as system reasons. System reasons could be unaffordability 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.
Steering Committee Follow-up:
Developer Follow-up:

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:

0083 Heart failure: Beta-blocker therapy for left ventricular systolic dysfunction
• Information provided by the measure is meaningful. • Information about harmonization is not provided. • The measure is already besing used successfully
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: 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.

Phase 1 Follow-up

In response to the Committee's recommendation for all-or-none composite measures for medications after percutaneous coronary interventions (PCI), the measure developer submitted the following new composite measure:

0964 Therapy with aspirin, P2Y12 inhibitor, and statin at discharge following PCI in eligible patients
Description: Patients undergoing PCI who receive prescriptions for all medications (aspirin, P2Y12 and statins) for which they are eligible at discharge. Numerator Statement: Patients who receive all medications for which they are eligible. 1. Aspirin prescribed at discharge (if eligible for aspirin as described in the denominator) AND 2. P2Y12 agent (clopidogrel, prasurgel, or ticlopidine) prescribed at discharge (if eligible for P2Y12 as described in the denominator Denominator Statement: All patients surviving hospitalization who are eligible to receive any one of the three medication classes: 1) Eligibile for aspirin (ASA): Patients undergoing PCI who do not have a contraindication to aspirin documented OR 2) Eligibility for P2Y12 agent (clopidogrel, prasugrel, or ticlopidine): Patients undergoing PCI with stenting who do not have a contraindication to P2Y12 agent documented OR 3) Eligibility for statin therapy: Patients undergoing PCI who do not have a contraindication to statin therapy. Exclusions: Discharge status of expired; not eligible for aspirin, P2Y12, or statin (contraindicated or blinded to all 3 medications) Adjustment/Stratification: Level of Analysis: Hospital Type of Measure: Composite Data Source: Registry data Measure Steward: American College of Cardiology Foundation (ACCF)
Steering Committee Recommendation for Endorsement: Y-17; N-0; A-0 Rationale: • Composite developed at suggestion of this Steering Committee in Phase 1. • Components are all measures that meet evaluation criteria. • All -or-none composite. Steering Committee reconsidered whether the individual components were needed as endorsed measures in addition to the composite: Votes for composite measures only—11 Votes for composite and individual measures—8
If applicable, Conditions/Questions for Developer: Developer Response:
1. Importance to Measure and Report: Y-19; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: • The performance gap is higher with the composite compared to the individual measures. • Overall performance is 86%.

0964 Therapy with aspirin, P2Y12 inhibitor, and statin at discharge following PCI in eligible patients
• Components are strongly evidence-based.
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: • Good specifications. • Newer drugs are coming—specifications include all FDA-approved drugs for the indication • What if LDL= 50? Exclusions are allowed.
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: • Added value 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: • Uses same registry data as the component measures

NEXT STEPS

- NQF staff will submit the Committee's questions to the measure developers.
- For measures that otherwise meet all NQF endorsement criteria, NQF has proposed a category of "inactive endorsement." The proposed policy will go out for public comment and be reviewed by NQF's Board of Directors in May 2011.
- NQF staff will create an analysis and present to the Committee the pros and cons of selecting "best in class" among competing measures.
- The Committee will meet via teleconference on May 11, 2011, to continue discussions from the in-person meeting.