

Endorsing Cost and Resource Use Measures: Phase 2

FINAL TECHNICAL REPORT

FEBRUARY 20, 2015

This report is funded by the Department of Health
and Human Services under contract HHSM-500-
2012-00009I Task Order HHSM-500-T0008.



**NATIONAL
QUALITY FORUM**

Contents

Introduction	3
Cost and Resource Use Standing Committee	4
Improving NQF's Cost and Resource Use Measurement Portfolio.....	6
Cost and Resource Use (Phase 2): Cardiovascular Measure Evaluation.....	8
Comments Received	8
Overarching Issues.....	9
Summary of Measure Evaluation.....	10
Appendix A: Details of Measure Evaluation.....	13
Endorsed Measures	13
Appendix B: Measures Endorsed in Cost and Resource Use Since April 2012	28
Appendix C: Cost and Resource Use Standing Committee, Technical Expert Panel, and NQF Staff	29
Appendix D: Measure Specifications	33

Introduction

This report serves as an addendum to the Cost and Resource Use phase 1 report; the content of this report will focus solely on the evaluation of the Cost and Resource Use phase 2 cardiovascular condition-specific measures. Details of the evaluation of each of the measures can be found in [Appendix A](#).

This project was a 3-phase effort focused on evaluating and endorsing cost and resource use measures. In [phase 1](#), noncondition-specific measures of total cost were evaluated; a noncondition-specific measure of total cost using a per-hospitalization episode approach for the Medicare population was endorsed. [Phase 2](#) focused on cardiovascular condition-specific measures, and phase 3 focuses on pulmonary condition-specific measures. A summary of the measures evaluated and endorsed for each phase is included below:

- Phase 1: Total cost noncondition-specific per-capita or per-hospitalization episodes
 - Endorsed (December 6, 2013): 2158: Medicare Spending Per Beneficiary measure (CMS)
- **Phase 2: Cardiovascular condition-specific per capita and condition-specific episodes**
 - Endorsed (October 7, 2014): 1558: Relative Resource Use for People with Cardiovascular Conditions (NCQA)
 - Endorsed with conditions* (February 4, 2015):
 - 2431: Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for Acute Myocardial Infarction (AMI) (CMS/Yale)
 - 2436: Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for heart failure (HF) (CMS/Yale)
- Phase 3: Pulmonary condition-specific per capita and condition-specific episodes
 - Endorsed (December 29, 2014):
 - 1560: Relative Resource Use for People with COPD (NCQA)
 - 1561: Relative Resource Use for People with Asthma (NCQA)
 - Endorsed with conditions* (February 4, 2015):
 - 2579: Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for pneumonia (CMS/Yale)

****Conditions for endorsement put forth by the NQF Board of Directors included:***

- *One-year look-back assessment of unintended consequences: NQF staff will work with the Cost and Resource Use Standing Committee and CMS to determine a plan for assessing potential unintended consequences of these measures in use. The evaluation of unintended consequences will begin in approximately 1 year, and possible changes to the measures based on these data will be discussed at that time.*
- *Consideration for the SDS trial period: The Cost and Resource Use Standing Committee will consider whether the measure should be included in the NQF trial period for consideration of sociodemographic status adjustment.*
- *Attribution: NQF will consider opportunities to address the attribution issue.*

Cost and Resource Use Standing Committee

In an effort to remain responsive to its stakeholders' needs, NQF has been engaged in various ongoing efforts to improve and refine the Consensus Development Process (CDP). Volunteer, multistakeholder steering committees are the central component of the endorsement process, and the success of the CDP projects is due in large part to the participation of its steering committee members. In the past, NQF initiated the Steering Committee nominations process and seated new project-specific committees only when funding for a particular project had been secured; the Committees were then disbanded once the project concluded and the funding ended. Seating new committees with each project not only lengthened the project timeline, but also resulted in a loss of process continuity and consistency because committee membership changed—often quite substantially—over time.

To address these weaknesses in the CDP, NQF transitioned to the use of Standing Committees for various topic areas. These Standing Committees oversee the various measure portfolios; this oversight function will include evaluating both newly-submitted and previously-endorsed measures against NQF's measure evaluation criteria, identifying gaps in the measurement portfolio, providing feedback on how the portfolio should evolve, and serving on any ad hoc or expedited projects in their designated topic areas.

Since the completion of the first phase of cost and resource use measure evaluation, the Cost and Resource Use *Steering* Committee was transitioned to a *Standing* Committee. While many members of the current standing committee were on the prior steering committee, several new members joined the Committee as well. The Cost and Resource Use Standing Committee currently includes 23 members ([Appendix C](#)). Each member has been randomly appointed to serve an initial 2- or 3-year term, after which he/she may serve a subsequent 3-year term if desired.

NQF Portfolio of Performance Measures for Cost and Resource Use

With the completion of the third phase of cost and resource use measure evaluation, the NQF portfolio includes 9 endorsed cost and resource use measures. NQF's Cost and Resource Use Measure Portfolio includes measures developed using different approaches. While there are many elements that can be compared across the approaches, the 3 distinguishing characteristics include whether the measure is per-capita or episode-based, condition-specific or noncondition-specific, and whether the measure uses actual prices paid or standardized prices. More specifically, per-capita measures capture costs over a 1-year period, in contrast to episode-based approaches which generally define clinically relevant start and stop periods for capturing costs or utilization. Measures can also be defined as noncondition-specific (e.g., total per member per month cost), or can be more narrowly defined for a specific condition (e.g., cost for an episode of pneumonia). The pricing approach for cost measures commonly uses actual prices paid by the health plan to the provider and a resource use measure commonly applies standard prices to the services used by the patient. The table below compares the approaches of measures in the NQF cost and resource use measure portfolio.

Table 1. Current NQF Cost and Resource Use Measure Portfolio – Comparing Approaches

	HEALTHPARTNERS	NCQA	CMS
Measure Type	Per-capita	Per-capita	Per-episode (per-hospitalization)
	Noncondition-specific	Condition-specific	Noncondition-specific
Costing Approach	Actual Prices Paid and Standardized Prices	Standardized Prices	Standardized Prices
Data Sources	Administrative Claims	Administrative Claims, EHR, Imaging/ Diagnostic Study, Laboratory, Pharmacy, Registry, Paper Records	Administrative Claims
Lowest Level of Analysis	Physician Group	Physician Group	Facility
Stakeholder Perspective	Patient Out of Pocket Costs, Cost to Health Plan	Cost to health plan	Cost to Health Plan
Tested Population	Commercial	Commercial, Medicaid, Medicare	Medicare
Risk Adjustment	Johns Hopkins Adjusted Clinical Groups	Hierarchical Condition Category	Centers for Medicare & Medicaid Services Hierarchical Condition Category
Proprietary Components	Yes – Risk Adjuster; Adjusted Clinical Groups (ACG)	No	No
Endorsed Measures	Total Cost of Care, Total Resource Use	Asthma, Chronic Obstructive Pulmonary Disease, Cardiovascular, Diabetes	Payment-Standardized Medicare Spending Per Beneficiary (MSPB), 30-day hospital episode costs for pneumonia, heart failure and AMI

Use of Measures in the Portfolio

The cost and resource use measures in the portfolio are among NQF's newest measures. Many are in use in private sector programs such as HEDIS, NCQA's Quality Compass and Health Plan Rankings, the HealthPartners Total Cost of Care Shared Savings Provider Incentive program and the Partners in Excellence program. Since endorsement, many states and regional quality improvement collaboratives have implemented the HealthPartners measures in an effort to further understand their cost and resource use in primary care. NQF #2158 Payment-Standardized Medicare Spending Per Beneficiary (MSPB) is currently in use in the Hospital Inpatient Quality Reporting (IQR) and Hospital Value-Based

Purchasing (VBP) federal programs. NQF #2431 Hospital-level, Risk-standardized Payment Associated with a 30 day Episode-of-Care for Acute Myocardial Infraction (AMI) is currently used in the Hospital IQR federal program and is reported on the Hospital Compare website alongside an AMI mortality measure. NQF #2436 Hospital-level, Risk-standardized Payment Associated with a 30 day Episode-of-Care for Heart Failure (HF) has been finalized to be used in the Hospital IQR program beginning October 1, 2016; NQF #2579 Hospital-level, Risk-standardized Payment Associated with a 30 day Episode-of-Care for pneumonia has been finalized for the Hospital IQR program beginning October 1, 2017. For more information on previously endorsed NQF cost and resource use measures, see [Appendix B](#).

Improving NQF's Cost and Resource Use Measurement Portfolio

During their discussions, the Committee identified high-leverage areas for cost/resource use measurement for future measure development. Additionally, the Committee reviewed a proposed list of high-leverage opportunities identified by the NQF-convened [Measure Applications Partnership \(MAP\) Affordability Taskforce](#). The Cost/Resource Use Standing Committee concurred with the MAP taskforce noting the importance of measuring total cost of care, variation between the prices charged for the same services, and making pricing information more transparent. Specifically, the group supported the high-leverage measurement areas identified by the MAP taskforce including heart disease, diabetes, cancer, mental disorders, pulmonary conditions, orthopedics, obstetrics and gynecological conditions, GI conditions, end-organ failure with functional impairment, cognitive impairment as well as multi-morbidity functional and cognitive impairment.

In addition to measuring total cost of care, the Committee encouraged developers and MAP to prioritize episode-based cost measures for conditions of high prevalence and high cost. The Committee suggested that—in addition to measuring the costs and resources within a single episode—aggregate analysis of episode-based measures would enable broader understanding of the frequency and incidence of condition-specific episodes and highlight any irregular incidences of episodes that may be markers of poor quality care.

Appropriateness and Overuse

The Committee encouraged further development of measures of overuse and areas of resource use that are deemed inappropriate or wasteful. While overuse measures are typically categorized as indicators of quality, future efforts should consider how to better integrate overuse and appropriateness measures into the domain of cost and resource use, as these types of care patterns have a direct impact on resource utilization and costs and facilitate focus on targeted interventions or services for which providers can improve.

Future Considerations

Attribution

The Standing Committee discussed the need for developing an accountability framework for how cost and resource use measures are designed and attributed based on the level of analysis. To date, for the measures evaluated and endorsed, there has been more general agreement amongst stakeholders on the proposed approaches for attributing costs and resource use to health plans for the designated use

than for measures with approaches focused on hospitals, physician groups, or individual clinicians. This has signaled the need for further work on exploring consensus-based principles for attribution to these entities. As part of the Board of Director's conditions for endorsement for the CMS measures for condition-specific 30-day hospital episodes, NQF will be seeking opportunities to further address this issue and develop guidance for the field.

Intended Use

The intended use of a measure may influence and sometimes dictate a measure's design and methodology. The current NQF endorsement criteria assess the extent to which a measure is suitable for use in accountability applications (e.g., public reporting, value-based purchasing programs, etc.) and quality improvement. The Committee argued that NQF's classification of accountability applications may be too broad of a term, and resource use measures designed for public reporting may appropriately differ from measures designed for value-based purchasing programs. The Committee encouraged future work to understand whether, and how, NQF resource use criteria might reflect differences in evaluation based on the use of the cost/resource use measure.

Using Measurement to Facilitate Price Transparency

Given the rise of health insurance exchanges and high-deductible health plans, the Committee recognized the importance of developing measures that enhance cost transparency. The Committee noted that efforts to increase transparency of pricing information reflecting the prices paid by the health plan for services can be advanced through measurement; however, they also acknowledged the myriad of regulatory and policy issues that need to be addressed in order to start making this information available. There are significant barriers to sharing pricing information due to the legal and contractual limitations that prevent hospitals and physician groups from making make pricing transparent to external parties; this also limits the health plans' ability to freely share this information. Further, while price transparency could fuel negotiations on behalf of health plans to lower prices for the services they cover for members, some Panel members cautioned about the reverse impact; prices could also be driven up by providers who try to negotiate higher prices from health plans in order to receive payments comparable to their more costly competitors.

Production Costs

Recognizing the limitations of the current cost accounting systems in most of the healthcare system, the experts agreed that the time driven activity-based costing (ABC), or micro-costing, approach should continue to be explored for measure development and potential evaluation for endorsement. This costing method will help the system understand the actual cost to the provider (i.e., hospital, physician group) to deliver care, highlight areas of variability and potential waste, and to understand the time-based cost per unit for services and episodes of care (e.g., nursing care for a patient for a period of time). A number of members also expressed caution about driving toward micro-costing approaches, noting the trade-offs of this type of cost measurement. Healthcare institutions often absorb costs associated with teaching and supporting vital community resources, such as burn units. Due to the intensive amount of time, resources, and often costly care required to care for even a small number of patients, hospitals who support these types of services could appear less cost efficient when compared to other facilities that do not.

Cost and Resource Use (Phase 2): Cardiovascular Measure Evaluation

On March 4-5, 2014 the Cost and Resource Use Standing Committee evaluated two new measures and one maintenance measure against NQF's [Resource Use Measure Evaluation Criteria](#).

To facilitate the evaluation, a Cardiovascular Technical Expert Panel (TEP) was convened (see [Appendix C](#)) to review and provide input to the Committee on the clinical specifications of the measures. In addition to convening the TEP and Committee via conference call to discuss the TEP's analysis, a qualitative summary of the TEP's analysis of the measures was compiled and shared with the Committee for consideration during their evaluation of the scientific acceptability criteria; the TEP was not charged with providing ratings of the criteria or making recommendations for endorsement. Each member of the Committee then completed a preliminary evaluation of the measures prior to consideration by the entire Standing Committee at the in-person meeting. Each member of the Committee then completed a preliminary evaluation of the measures prior to consideration by the entire Standing Committee at the in-person meeting. The Committee's discussion and ratings of the criteria are summarized in [Appendix A](#) beginning on page 12.

Table 2. Cost and Resource Use Phase 2 Summary

	MAINTENANCE	NEW	TOTAL
Measures considered	1	2	3
Measures withdrawn from consideration	0	0	0
Measures endorsed (including those with conditions)	1	2	3
Measures not endorsed	0	0	0
Reasons for not endorsing		Importance – 0 Scientific Acceptability – 0 Overall – 0 Competing Measure – 0	

Comments Received

NQF solicits comments on endorsed measures on an ongoing basis through the Quality Positioning System (QPS). In addition, NQF has begun soliciting comments prior to the evaluation of the measures via an online tool located on the project webpage. For this evaluation cycle, the pre-evaluation comment period was open from January 14 – February 3, 2014¹ for the measures under review. All submitted comments were provided to the Committee prior to their initial deliberations held during the workgroups calls. A total of [2 pre-evaluation comments](#) were received for the measure NQF #2431: Hospital-level, Risk-standardized Payment associated with a 30-day Episode-of-care for Acute

¹ Comments on the measure stewarded by NCQA were not solicited because measure submission materials could not be posted during this period.

Myocardial Infarction (AMI) and NQF #2436: Hospital-level, Risk-standardized Payment associated with a 30-day Episode-of-care for Heart Failure (HF). The commenters raised the importance of viewing the implications of attributing the cost to hospitals or the provider level.

The 30-day post-evaluation comment was open from April 21-May 21, 2014. During this commenting period, NQF received 39 comments from 9 organizations. The Committee discussed these comments and took action on measure-specific comments as needed, during the Committee's post-comment call, which was held on June 4, 2014. Many commenters raised the same concerns that the Committee had discussed in their deliberations of these cardiovascular cost measures. The comments and the Committee's response for each measure are summarized in [Appendix A](#).

The primary themes of the comments on the 2 CMS and Yale cardiovascular cost and resource measures for Acute Myocardial Infarction and Heart Failure focused on attribution, risk adjustment, and patient transfers. Commenters expressed concern about the validity of the measures' risk adjustment model as it appeared to not account for enough variation for patient mix and severity. The Committee agreed with developers that at lower patient volumes, there is less certainty when estimating cost; therefore, developers use hierarchical risk modeling that adjusts for hospitals with low patient volumes.

Overarching Issues

Risk Adjustment

In the review of the CMS AMI (2431) and HF (2436) measures, the Committee was concerned with the potential for heterogeneity, or differences in case mix within each of the measures that would lead to potential misinterpretation of differences in episode cost performance. The Committee concurred with the TEP assessment that despite appropriate clinical inclusions and exclusions in the measures, the measures did not adequately account for the differences in severity.

Further, the Committee discussed the r-squared values, or coefficient of determination, for the risk adjustment models. In the measurement context, the r-squared value indicates the proportion of the measure score variation that is explained by variables in the risk adjustment model. The developers noted that the r-squared values were 0.05 for 2431 (AMI), and 0.03 for 2436 (HF), respectively. The Committee generally agreed that the risk adjustment model does not explain much of the variation in measure performance. For the purposes of performance measurement, not all variables that could influence total episode cost can be (or should be) included in the model since they may represent factors that are not under the control of the provider—for example, including complications or conditions that emerge after the start of care. Due to the exclusion of these types of variables from the risk adjustment model, the r-squared would understandably be lower than a predictive statistical model. However, given that acknowledgment, Committee remained dissatisfied that r-squared values of 0.03-0.05 were sufficient to account for differences in case mix and patient severity.

The developers reiterated that the purpose of the risk adjustment model is not to be predictive, but rather to level the playing field for comparing performance across providers. The developers further clarified that earlier studies comparing clinical data and administrative claims-based risk adjustment models demonstrated similar performance between the approaches. The Committee was concerned

that mortality outcomes are not similar to, nor do they correlate sufficiently with, episode-based costs in order to infer that a risk adjustment model using administrative claims would perform similarly.

The Committee noted that their concerns about the risk adjustment approach were greater for the HF measure than for the AMI measure; because heart failure hospitalizations tend to vary in severity and case mix, one might expect to see differences between acute care costs and cost within the next 30 days.

Summary of Measure Evaluation

The following brief summaries of the measures and the evaluation highlight the major issues that were considered by the Committee. Details of the Committee's discussion and ratings of the criteria are included in [Appendix A](#).

1558 Relative Resource Use for People with Cardiovascular Conditions (NCQA): Endorsed

Description: *The risk-adjusted relative resource use by health plan members with specific cardiovascular conditions during the measurement year; Resource Use Measure Type:* Per capita (population- or patient-based); **Level of Analysis:** Health Plan, Population: National, Population: Regional; **Costing Method:** Standardized pricing; **Target Population:** Populations at Risk; **Data Source:** Administrative Claims; **Measure Steward:** National Committee for Quality Assurance

This maintenance measure is a condition-specific per-capita measure initially endorsed in January 2012. The Committee was generally supportive of this measure, noting the importance of including cost measures alongside relevant HEDIS quality-of-care measures to assess health plan and physician group value. The developers demonstrated that the measure is feasible to implement at both the health plan and the physician group level with a minimum of 250 members. The Committee requested quantitative results from the developers demonstrating empirical reliability testing including the results from the systematic evaluation of face validity that were verbally described by the developer during the meeting. This additional information from the measure developers was reviewed during the post-comment call on June 4, 2014; the Committee found the additional information sufficient to affirm their recommendation for endorsement. The NQF membership, CSAC, and NQF Board of Directors Executive Committee approved this measure without any noted concerns.

2431 Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for Acute Myocardial Infarction (AMI) (CMS): Endorsed [with conditions]

Description: *This measure estimates hospital-level, risk-standardized payment for an AMI episode-of-care starting with inpatient admission to a short term acute-care facility and extending 30 days post-admission for Medicare fee-for-service (FFS) patients who are 65 years of age or older with a principal discharge diagnosis of AMI; Resource Use Measure Type:* Per episode; **Level of Analysis:** Facility; **Costing Method:** Standardized pricing; **Target Population:** Senior Care; **Data Source:** Administrative Claims; **Measure Steward:** Centers for Medicare & Medicaid Services

This newly submitted measure from CMS is a condition-specific, per-episode measure. The Committee noted that AMI is a high-priority area for measuring cost and resource use, along with appropriate measures of quality, noting the incidence of the condition and the cost per episode. The Committee initially expressed concern with attributing post-acute expenses for 30 days after admission to the

admitting hospital, but the developers provided a sufficient rationale that hospitals can act as catalyst in their community to improve care coordination for the patients they treat. The Committee did express concern about the risk adjustment model's ability to capture differences in patient case mix across hospitals as described in the overarching issues section. While the developers submitted results of face validity testing, the Committee expressed concern over the lack of empirical validity testing of the measure as specified. The Committee did not reach the threshold for consensus for this measure during the in-person meeting; however, after consideration of NQF member and public comments, and additional justification for the measurement methodology and approach provided by the developer, the Committee recommended the measure for endorsement. When member voting results indicated consensus had not been reached, NQF hosted a call for members to share their concerns about the measure and to identify a path forward. Following the Consensus Standards Approval Committee's (CSAC) consideration and approval of the measure, the Board of Directors ultimately ratified endorsement with conditions. The conditions for endorsement included a 1-year look-back assessment of unintended consequences, consideration for inclusion in the Sociodemographic Status (SDS) trial period, and for NQF to pursue future work on developing guidance for attribution. During the appeals period, American College of Cardiology (ACC) submitted an appeal with concerns on attribution, stand-alone cost measures, and sociodemographic variables. The endorsement decision was subsequently upheld by CSAC and the Executive Committee.

2436 Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for Heart Failure (CMS): Endorsed [with conditions]

Description: *This measure estimates hospital-level, risk-standardized payment for a HF episode of care starting with inpatient admission to a short term acute-care facility and extending 30 days post-admission for Medicare fee-for-service (FFS) patients who are 65 years of age or older with a principal discharge diagnosis of HF; **Resource Use Measure Type:** Per episode; **Level of Analysis:** Facility; **Costing Method:** Standardized pricing; **Target Population:** Senior Care; **Data Source:** Administrative Claims; **Measure Steward:** Centers for Medicare & Medicaid Services*

This newly submitted measure from CMS is also a condition-specific, per-episode measure. The Committee noted that HF is a high-priority area for measuring cost and resource use, along with appropriate measures of quality, noting it is a common health condition that drives spending in the Medicare program. The Committee had concerns about attributing costs for heart failure to hospitals, noting that the more appropriate locus of accountability is the ambulatory care primary care provider. The experts also noted that the episode-based 30-day time period for measuring costs does not align with the typical disease progression for heart failure. The Committee shared the concern about the risk adjustment model's ability to capture differences in patient case mix across hospitals as described in the overarching issues section. The Committee did not reach the threshold for consensus for this measure during the in-person meeting; however, after consideration of NQF member and public comments, and additional justification for the measurement methodology and approach provided by the developer, the Committee recommended the measure for endorsement. When member voting results indicated consensus had not been reached, NQF hosted a call for members to share their concerns about the measure and to identify a path forward. Following the Consensus Standards Approval Committee's (CSAC) consideration and approval of the measure, the Board of Directors ultimately ratified endorsement with conditions. The conditions for endorsement included a 1-year look-back assessment

of unintended consequences, consideration for inclusion in the Sociodemographic Status (SDS) trial period, and for NQF to pursue future work on developing guidance for attribution. During the appeals period, American College of Cardiology (ACC) submitted an appeal with concerns on attribution, stand-alone cost measures, and sociodemographic variables. The endorsement decision was subsequently upheld by CSAC and the Executive Committee.

Appendix A: Details of Measure Evaluation

Endorsed Measures

1558 Relative Resource Use for People with Cardiovascular Conditions	13
2431 Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for Acute Myocardial Infarction (AMI)*	19
2436 Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for heart failure (HF)*	23

**Endorsed with Conditions put forth by the NQF Board of Directors.*

Endorsed Measures

1558 Relative Resource Use for People with Cardiovascular Conditions

[Submission](#) | [Specifications](#)

Description: The risk-adjusted relative resource use by health plan members with specific cardiovascular conditions during the measurement year.

Resource Use Measure Type: Per capita (population- or patient-based)

Level of Analysis: Health Plan, Population : National, Population : Regional

Costing Method: Standardized pricing

Target Population: Populations at Risk

Data Source: Administrative Claims

Measure Steward: National Committee for Quality Assurance

STANDING COMMITTEE MEETING [March 4-5, 2014]

1. Importance to Measure and Report

(1a. High Priority, 1b. Opportunity for Improvement, 1c. Measure Intent)

1a. High Priority: **H-20; M-2; L-0; I-0** 1b. Opportunity for Improvement: **H-7; M-13; L-2; I-1** 1c. Measure Intent: **H-17; M-6; L-0; I-0** 1. Overall: **H-12; M-10; L-1; I-0**

Rationale:

- National and regional health plan data aggregated by the developer highlight the clinical and financial importance of Cardiovascular Disease (CVD). The direct and indirect costs of CVD have increased from \$400 billion to \$500 billion from 2006 to 2010. When resource use data is presented alongside HEDIS quality composite, consumers, employers and government programs have a greater perspective on overall health plan value.
- The Committee noted during their initial measure evaluation that data on variations in cost and disparities in resource use in managing CVD were not included in the measure submission. The Committee also noted in their initial measure evaluation that no data was provided after the

point of initial endorsement, which would have been helpful in assessing performance. The Committee mentioned these two concerns during the meeting, but the developer did not address either issue in the discussion. The Committee did not pursue further discussion.

- Though the developer stated that the benefit of the measure would be to gain greater information on the value of health care services through linking Relative Resource Use (RRU) measures and quality measures, the Committee's comments in the initial measure evaluation indicated that they were not entirely in agreement with the stated benefit of the measure. The Committee noted that "value" could be a difficult concept to define. One Committee member expressed the concern that while higher quality is always better, lower resource use may not always be better, especially when considering disparities in care that may result from undertreating particular groups. Another Committee member stated that the linkage between Relative Resource Use (RRU) measures and quality measures could be potentially useful for evaluation of benefits and programs.
 - The developer responded to the Committee's concerns by describing how the measure had been implemented successfully to provide greater information to plans. The Committee accepted the developer's explanation and did not continue the discussion on measure intent.

2. Scientific Acceptability of Measure Properties

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-0; M-18; L-2; I-3** 2b. Validity: **H-0; M-17; L-1; I-5**

Rationale:

- Both the Committee and the TEP expressed concerns regarding the reliability testing for the measure.

Based on the measure submission, the Committee was not satisfied that reliability testing had taken place. Information submitted on reliability testing by the developer was descriptive, explaining that health plan stability was determined by the magnitude of quartile shifts of O/E over time, but no data on stability or magnitude was included in the measure submission. The developer responded to the Committee by explaining that plan data is tested annually and focused on the identification of outliers, errors in submissions and variations when correlating the measure data with other sources. The developer further explained that data on the percentage of health plans that had shifted quartiles could be found in the developer's annual report on RRU, but not the magnitude of shift for each health plan. The developer agreed to make portions of the annual report that discussed plan testing and quartile shifts in performance available to the Committee. The Committee is willing to accept additional data provided by the developer to support reliability; NQF staff will work with the developer to provide this information to the Committee after the NQF member and public comment period.
- One Committee member questioned if there was a minimum number of plan members needed per condition for the measure to be meaningful. The developer responded that the minimum number in the eligible population was 250 members, and that the risk adjustment had been validated against that number which should satisfy concerns regarding the small sample size. The Committee accepted the developer's explanation of risk adjustment validation.
- The Committee noted that the testing portion of the measure submission is primarily descriptive and indicates validity testing has not been performed. As a determination of face validity is adequate in evaluating resource measures, the Committee and the TEP asked the developer to discuss this in greater detail. The developer explained that the measure had been implemented

in the marketplace and yearly performance analysis led to changes in the risk adjustment to the HCC model, a cap on the maximum amount of spending, additional exclusions, and lowering the number of members required for each plan. The Committee was willing to accept the developer's explanation as the measure has been implemented successfully in program use as proof of construct validity.

- One Committee member asked for clarification on the method of risk adjustment using gender as part of the model, and why that was chosen over the NQF preferred model of stratification. The developer explained that the HCC risk adjustment model requires gender as an input to predict utilization, but the data is reported back to health plans in a stratified fashion by risk cohort. The Committee accepted the developer's explanation of risk adjustment.
- The Committee also questioned the use of the RRU-HCC risk model as opposed to the CMS-HCC risk model in terms of the included comorbidities. The TEP noted the measure metrics were insufficient due to the lack of reliability and validity testing results provided by the developer. The TEP could not identify the r^2 in the measure materials and agreed with the Committee that the risk model was not validated. The developer acknowledged the concerns of the TEP and stated that the original measure submission included validation information of the RRU-HCC model for applicability and appropriateness for the Relative Resource Utilization. The developer explained they are unable to produce an r^2 on the aggregate data submitted by the plans as no individual patient data is provided. To prove the suitability of the RRU-HCC model, the developer tested the model using simulations of patient level data. When the developer was satisfied that the RRU-HCC model was valid, they applied that model to all health plan data used in development of the measure. The Committee is willing to accept the developer's explanation to determine face validity.
- The Committee agreed with the TEP concern that the exclusion of cardiovascular patients with HIV or cancer from the clinically relevant measure population was inappropriate. These patients use resources relevant to cardiovascular care, and the opinion of the TEP is their resource use should be captured. A health plan that refuses to pay for those resources could appear to perform better on this measure. The developer responded that these populations were excluded because of disproportionate resource use. The developer also stated that plans that refuse to pay for services were addressed through NCQA accreditation standards for each health plan, which include the process for approving or denying payment for services. The Committee was satisfied with the developer's explanation.
- The Committee questioned the impact on validity through exclusions created by instituting a maximum \$100,000 spending cap per patient. The Committee's concern was that the spending cap artificially reduced variation by eliminating high dollar claims. The developer responded that the cost cap was developed based on modeling different RRU scenarios. These models were validated in 2005, 2009 and 2011. The Committee accepted the developer's explanation of the maximum spending cap.
- The Committee questioned the use of the HCC risk adjustment model. The Committee expressed the opinion that the use of this model would result in difficulty in determining between variations in resource use due to practice, and variations due to differences in patients. The developer explained that the HCC model of risk adjustment was chosen from four potential models as the HCC model demonstrated the best performance in terms of sensitivity and specificity to the measure population. Implementation of the HCC model increased the amount of data reported by health care plans on specific patient cohorts. The Committee accepted the developer's explanation of the choice of HCC risk model.

3. Feasibility: H-20; M-3; L-0; I-0

(3a. Byproduct of Care Processes; and 3b. Electronic sources; and 3c. Data Collection Strategy)

Rationale:

- The Committee was satisfied that the measure was feasible to implement as the measure is currently in use at both the health plan and the physician group level. The Committee acknowledged that the data is currently being collected and is available in electronic sources

4. Use and Usability: H-8; M-14; L-1; I-0

(4a. Accountability/transparency (used in accountability w/in 3 yr, public reporting w/in 6 yr, or if new - credible plan); and 4b. Improvement – progress demonstrated (if new - credible rationale); and 4c. Unintended Consequences - benefits outweigh evidence of unintended negative consequences (to patients/populations); and 4d. Measure Deconstruction – can be deconstructed to facilitate transparency and understanding)

Rationale:

- The Committee questioned how consumers and payers would use the measure for improvement with data reported at plan and population level. One member of the Committee emphasized that it was difficult to attribute meaning to changes in health plan performance as reported by the measure. The developer responded that they could offer guidance to users of the measure to identify cost opportunities. Measure results provide valuable information on patterns of utilization that are consistent with high quality and there are broad applications for this data for users. The intent is help the consumer and payer market understand the variation around cost and resource use. The Committee accepted the developer's explanation of how consumers and payers could use the measure.
- One Committee member noted that the measure submission sample report included information on planned use for regulatory and accreditation programs and asked the developer to comment on that application. The developer responded that inclusion into regulatory and accreditation programs is a potential planned use, dependent on the ability to more clearly differentiate between the performance of various health plans. The Committee accepted the developer's explanation.
- Another Committee member questioned if this measure would be integrated into the all payer claims database that a number of states are planning to implement, that allows for comparisons between plans. The developer responded that some of the participating states have limitations on the use of cost and resource data and that there were no immediate plans to integrate this measure into those programs. The Committee accepted the developer's explanation of restrictions on implementation in the all payer claims database.
- Some Committee members questioned the value of comparing variation across health plans and what actions health plans might take in result of these comparisons. These actions could have positive or negative implications. Actions could include network selection of providers, the implementation of value based purchasing programs, engagement with members or changes in medical policy that limit resources for patients with certain conditions. The developer responded that the pricing structure in the measure is standardized to eliminate market variation and all benchmarking and measure methodology is transparent to health plans, which allows for better comparison of quality between health plans and allows plans to examine their own performance to facilitate improvement. The developer stated that they did not expect that health plans would limit resources based results from this measure. Several Committee members indicated agreement with the developer by provided examples of use of this measure

and other similar measures as in use as helpful feedback to delivery systems and as important in managing dual eligible populations. The Committee did not continue this discussion.

- One Committee member had a question about the application and use of this measure and questioned if the measure was included in the Five Star Quality Rating system for comparison of RRU between Medicare Advantage Plans. The developer response was that CMS had not included this measure in Five Star ratings. The Committee accepted the developer's explanation of measures included into Five Star rating.
- One Committee member questioned how health plan performance could be determined by comparison between health plans. The developer explained that there are two indicators of health plan performance in annual data analysis. The first is a significant quadrant shift in health plans relative to each other; the second is an analysis of plan stability. These indicators allow for comparisons between health plans. The Committee accepted the developer's explanation of how comparison between plans could assist in understanding health plan performance.
- Some Committee members expressed the concern that the measure was specified to assess resource use at the health plan level and not the provider level. Those Committee members expressed the opinion that assessment at the provider level would provide more opportunity for improvement than the health plan level. The developer response was that health plan level assessment of resource use allows health plans to compare resource use to their peers, review their own data more closely, and look for opportunities and cost opportunities to improve based on the value they see from measure results. Individual plans can choose to apply assessments of resource use at the level of provider performance. The Committee accepted the developer's explanation of why plan level data was more useful than provider data in this measure.
- One Committee member expressed two concerns regarding the normalization of the data on health plan performance. The first concern questioned the value of normalization of data as it prevents the trending of information over time for a single health plan. The second concern questioned how normalization of data affects comparisons between health plans. The developer explained that in order to track improvement on the individual health plan level, a number of factors would have to be held artificially constant, which would prevent comparisons between health plans. All health plan submissions are combined with standardized prices and are used to calculate benchmarks. These standardized prices are updated yearly and the calculation of benchmarks is dependent on health plan submissions to the developer. Individual health plans can use this data to track their own improvement in different service categories, but the measure is constructed to allow for comparisons between health plans. The Committee accepted the developer's explanation of the reasoning behind data normalization.

Unintended Consequences

- The TEP and the Committee expressed concerns regarding the use of this measure for performance improvement. The TEP expressed the opinion that spending on cardiovascular conditions is not equitable for all populations, which results in disparities in care. Would improvement in performance be seen in reduced disparities in care? The TEP also questioned if all cardiovascular care considered under this measure was clinically effective or appropriate. If reduced spending by health plans indicates improvement in performance, how would that affect quality of care?
- The Committee expressed diverse opinions regarding the value of RRU of cardiovascular conditions for purchasers of health plans. One member expressed the concern that purchasers would focus more on plan cost than quality of plan and not consider health plan medical policy or provider network in their choices. Another member related the experience that health plans in local markets have used the relative resource index and pricing information from this

measure and similar measures as feedback towards improvement. The developer explained that prior to the availability of this measure; purchasers of health plans only had information on cost, but not for quality of individual health plans. This measure allows purchasers of health plans, both states and employers, to compare quality and health plan performance between different plans.

5. Related and Competing Measures

- No related or competing measures noted.

Standing Committee Recommendation for Endorsement: Y-20; N-2

6. Public and Member Comment: April 21, 2014 – May 21, 2014

- Several supportive comments for the measure were received, with commenters indicating that this measure could provide comparison data across the country. In addition, 2 issues were raised to the Committee's attention:
 - During the Phase 2 in-person meeting, the Committee requested that the developers provide a quantitative analysis of plan stability between measurement periods, including the magnitude and direction of shifts. The developers provided analysis demonstrating that a low proportion of plans change by more than one quartile.
 - A commenter raised concern that relative resource use measures are not particularly useful or meaningful to consumers to assess efficiency as they do not directly address out of pocket or total costs specific to the condition. The commenter requested that the Committee revisit the usability of this measure. The Committee and the developer acknowledged that this measure is less useful for patients and consumers; however, the Committee reaffirmed the importance of the measure for purchasers in particular that may use this measure to select a health plan.

7. NQF Member Voting: June 17, 2014-July 2, 2014

- Representatives of 17 member organizations voted.
- With 40% of the councils approving the measure, the voting results indicated that consensus was not reached among the membership.
- To further understand the rationale for the membership votes, NQF hosted conference calls with council leaders and NQF members to further discuss the issues.
 - 73 participants from 7 councils with broad distribution across the councils attended the All Member Call.
 - Staff compiled the major themes that arose from these consensus-building calls and shared them with the CSAC.

8. Consensus Standards Approval Committee (CSAC) Vote: August 12, 2014 Y-12; N-1

- The Consensus Standards Approval Committee (CSAC) pulled this measure on July 10, 2014, to further discuss NQF Member voting results indicating that consensus was not reached.
- NQF hosted a call on July 31, 2014 for members to discuss their concerns about the measure.
- CSAC reviewed the member voting results and themes from the membership call and endorsed this measure.

9. Board of Directors Vote: August 22, 2014

- The Executive Committee approved the measure.

10. Appeals: October 9, 2014- November 6, 2014

- No appeals submitted.

2431 Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for Acute Myocardial Infarction (AMI)*

[Submission](#) | [Specifications](#)

Description: This measure estimates hospital-level, risk-standardized payment for an AMI episode-of-care starting with inpatient admission to a short term acute-care facility and extending 30 days post-admission for Medicare fee-for-service (FFS) patients who are 65 years of age or older with a principal discharge diagnosis of AMI.

Resource Use Measure Type: Per episode

Level of Analysis: Facility

Costing Method: Standardized pricing

Target Population: Senior Care

Data Source: Administrative Claims

Measure Steward: Centers for Medicare and Medicaid Services

STANDING COMMITTEE MEETING [March 4-5, 2014]

1. Importance to Measure and Report

(1a. High Priority, 1b. Opportunity for Improvement, 1c. Measure Intent)

IM.1. High Priority: **H-20; M-1; L-0; I-0** IM.2. Opportunity for Improvement: **H-10; M-10; L-0; I-1** IM.3. Measure Intent: **H-16; M-5; L-0; I-0** Overall Importance: **H-16; M-5; L-0; I-0**

Rationale:

- The Committee agreed that Acute Myocardial Infarction (AMI) is a high-priority area for measurement because it is a common condition that drives spending in hospitals.
- The Committee questioned the opportunity for improvement because the inner quartile of performance gets very narrow after risk adjustment. The developers responded that this measure is intended to be paired with quality measures and that the opportunity for improvement must be considered with the opportunity to improve the quality of care when factoring in the cost of the care provided.
- Additionally, the Committee was concerned with the attribution of post-acute expenses to the admitting hospital. The developers responded that it is critical to capture those costs because the current system is setup to incentivize pushing those payments out into the post-discharge time period. Hospitals can act as catalysts in their communities for improving care and health decision-making.

- The Committee raised a question about the episode definition as 30 days from the date of admission and the potential need for alignment with the Medicare Spending per Beneficiary (MSPB) measure that defines a period of 30 days post-discharge. The developers responded that these specifications are aligned with a corresponding AMI mortality measure to be used together to assess value.

2. Scientific Acceptability of Measure Properties

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-3; M-16; L-2; I-0** 2b. Validity: **H-0; M-9; L-7; I-4**

Rationale:

- The Committee raised concern about the ability to assess performance of low volume hospitals given the hierarchical modeling approach and the potential implications it could pose for the reliability and validity of the measure. The developers responded that at lower patient volumes, the less certainty you have about your estimates for cost. This measure uses a continuous outcome so the estimate is more accurate than a binary outcome. Additionally, this measure uses hierarchical risk modeling that adjusts hospitals with low patient volume towards the mean. Furthermore, reporting is only done for hospitals that have 25 or more cases.
- The Committee further questioned the decision to attribute the entire cost of an episode to the initial hospital in the case of a transfer to another facility. The developers responded that the decision was made not to exclude these cases because transfers account for approximately 8 percent of AMI episodes. This represented too many cases to exclude. Furthermore, the initial hospital begins the episode of care and can have a great influence over the coordination of care.
- The Committee raised concerns about whether the supplied reliability testing was done with the amount of data required by the specification of the measure. The measure is specified for a 12-month period and the testing used combined 2008 and 2009 data. The developers responded that the measure will eventually be implemented with three years of data but when the testing was performed, only two years of data was available. The decision to include three years of data was made to include as many hospitals in the measurement as possible. Many hospitals do not have 25 AMI cases in a year and would therefore not meet the threshold for reporting.
- In addition to the risk adjustment provided in the overarching issues section, the Committee was concerned that the developer did not do empiric measure-level validity testing for the measure as specified. The developers acknowledged that they relied on prior research on risk adjustment testing for mortality measures and also relied on face validity testing with their technical expert panel.

3. Feasibility: **H-18; M-3; L-0; I-0**

(3a. Byproduct of Care Processes; and 3b. Electronic sources; and 3c. Data Collection Strategy)

Rationale:

- The Committee had no concerns about the feasibility of the measure.

4. Use and Usability: **H-12; M-7; L-2; I-0**

(4a. Accountability/transparency (used in accountability w/in 3 yr, public reporting w/in 6 yr, or if new - credible plan); and 4b. Improvement – progress demonstrated (if new - credible rationale); and 4c. Unintended Consequences - benefits outweigh evidence of unintended negative consequences (to

patients/populations); and 4d. Measure Deconstruction – can be deconstructed to facilitate transparency and understanding)

Rationale:

- The Committee raised concern about the number of hospitals falling in the “average” range for the measure – 78 percent. 15 percent were rated “high” and 7 percent “low”.
- The Committee did appreciate the data breakdown provided to hospitals as a result of the measure.

5. Related and Competing Measures

- No related or competing measures noted.

Standing Committee Recommendation for Endorsement: Y-12; N-9 [Consensus not reached]

6. Public and Member Comment: April 21, 2014 – May 21, 2014

- Several supportive comments for the measure were received, with commenters indicating that the measure addresses an area of high morbidity, mortality, and healthcare costs. Commenters stated that information shared by CMS with hospitals will allow for identification of high/low cost areas and focused improvement. Additionally, commenters raised several issues with the measure, which were discussed during the in-person meeting:
 - Appropriateness of attribution approach
 - Commenters stated that attributing the cost of the entire episode to the admitting hospital may be inappropriate to attribute the cost of the episode to the hospital as much of the care happens in an outpatient setting. Commenters stated that measures should assess processes and outcomes over which the measured entity (e.g., hospital, physician group) can exercise a reasonable level of control, and that these measures may be more appropriate for an organization accepting bundled payments on behalf of all measured entities.
 - The Committee acknowledged this concern; however, the Committee stated that increasingly hospitals are responsible for care delivered up to 30 days after discharge. Consequently, hospitals are in the unique position of being able to push coordination of care, and this measure may serve as an impetus for this to occur.
 - Adequacy of risk adjustment model
 - Several commenters stated that the low r-squared values for the measure (0.05) indicated that the risk model did not account for enough of the variation in measure scores and may not adequately account for patient case mix and severity. Moreover, commenters believe that the low level of reliability demonstrated illustrated another fundamental flaw of both measures—that they fail to adequately account for complicating conditions that patients have prior to an episode of care.
 - The developers explained that at lower patient volumes, there is less certainty when estimating cost. The measure uses a continuous outcome which results in a more accurate estimate than would result from a binary outcome. Additionally, the measure uses hierarchical risk modeling that adjusts hospitals with low patient volume towards the mean.
 - Approach to addressing transfer patients

- Several commenters stated concern that the initial admitting hospital would be attributed cost for the episode when transferring patients to a second hospital, as the initial admitting hospital may have little control over the care that happens after the transfer.
- The Committee acknowledged this concern; however, the Committee stated that increasingly hospitals are responsible for care delivered up to 30 days after discharge.
- Risk adjustment for socio-demographic factors
 - Several commenters stated that the risk adjustment models for the measures should capture socio-demographic factors, as there is robust evidence that such factors affect health outcomes, including resource use.
 - NQF acknowledged these concerns and clarified that NQF is in the early stages of reviewing our policy on risk adjusting for socio-demographic factors. The report referenced is a draft report that has recently been reviewed during an NQF member and public comment period; the recommendations have not yet been finalized. As such, we ask that Committees continue to evaluate measures according to our current guidelines, that measures not be adjusted for socio-demographic variables. If in the future the recommendations for adjusting for socio-demographic variables become NQF policy, measures needing this adjustment will be updated and reviewed by the Committee through measure maintenance.
 - The Committee acknowledged that the timing of the NQF risk adjustment report is not ideal; however, given the current NQF policy on adjusting for sociodemographic variables, the Committee requested that a recommendation be issued with the measure that when reported, the results should be stratified by sociodemographic variables.
- After considering all comments and thorough discussion, the Committee requested the opportunity to revote on endorsement for the measure. The results of that vote are below:
 - **Yes- 14; No-7**
- The measure is recommended for endorsement and pursuant with NQF process will be posted for NQF member voting.

7. NQF Member Voting: June 17, 2014-July 2, 2014

- Representatives of 17 member organizations voted.
- With 40% of the councils approving the measure, the voting results indicated that consensus was not reached among the membership.
- To further understand the rationale for the membership votes, NQF hosted conference calls with council leaders and NQF members to further discuss the issues.
 - 73 participants from 7 councils with broad distribution across the councils attended the membership call.
 - Staff compiled the major themes that arose from these consensus-building calls and shared them with the CSAC.

8. Consensus Standards Approval Committee (CSAC) Vote: August 12, 2014, Y-10; N-3

- The Consensus Standards Approval Committee (CSAC) pulled this measure on July 10, 2014, to further discuss NQF Member voting results indicating that consensus was not reached.

- NQF hosted a call on July 31, 2014 for members to discuss their concerns about the measure.
- CSAC reviewed the member voting results and themes from the membership call and endorsed this measure.

9. Board of Directors (BOD) Vote: November 5, 2014

- The BOD ratified endorsement with the following conditions:
 - **One- year Look Back Assessment of Unintended Consequences:** NQF staff will work with Cost and Resource Standing Committee and CMS to determine a plan for assessing potential unintended consequences of this measure in use. The evaluation of unintended consequences will be initiated in approximately one year and possible changes to the measures based on this data.
 - **Consideration for SDS trial period:** The Cost and Resource Use Standing Committee will consider whether the measure should be included in the NQF trial period for sociodemographic status adjustments.
 - **Attribution:** NQF will consider opportunities to address the attribution issue.

10. Appeals: November 7, 2014- December 9, 2014

- NQF received an appeal for this measure from the American College of Cardiology (ACC). The appellants noted concerns with attribution, the use of stand-alone cost measures and the adjustment for sociodemographic variables.
- CSAC reviewed the appeal on January 13, 2015, and voted to uphold endorsement (92% approval).
- The BOD Executive Committee reviewed the appeal on February 4, 2015, and voted to uphold endorsement.

2436 Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for heart failure (HF)*

[Submission](#) | [Specifications](#)

Description: This measure estimates hospital-level, risk-standardized payment for a HF episode of care starting with inpatient admission to a short term acute-care facility and extending 30 days post-admission for Medicare fee-for-service (FFS) patients who are 65 years of age or older with a principal discharge diagnosis of HF.

Resource Use Measure Type: Per episode

Level of Analysis: Facility

Costing Method: Standardized pricing

Target Population: Senior Care

Data Source: Administrative Claims

Measure Steward: Centers for Medicare and Medicaid Services

STANDING COMMITTEE MEETING [March 4-5, 2014]

1. Importance to Measure and Report

(IM.1. High Priority; IM.2. Opportunity for Improvement; and IM.3. Measure Intent)

IM.1. High Priority: **H-14; M-4; L-3; I-0** IM.2. Opportunity for Improvement: **H-11; M-9; L-1; I-0** IM.3. Measure Intent: **H-11; M-9; L-1; I-0** Overall Importance: **H-8; M-13; L-0; I-0**

Rationale:

- The Committee agreed that Heart Failure (HF) is a high-priority area for measurement because it is a common condition that drives spending in hospitals and systems.

2. Scientific Acceptability of Measure Properties

(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)

2a. Reliability: **H-7; M-11; L-2; I-1** 2b. Validity: **H-0; M-9; L-6; I-5**

Rationale:

- The Committee questioned the description of a “typical heart failure” patient considering that many patients have chronic heart failure and a hospitalization occurs for an acute incidence of the disease. The developer responded that they meant non-LVAD, non-transplant, non-major surgical procedure heart failure patients. These conditions dramatically change the payment outcome. They are sicker patients and were excluded from the measure.
- The Committee also questioned the methodology for choosing the index admission for patients who might have multiple hospitalizations in the same year for heart failure. The developer responded that the hospitalization is randomly selected and any re-hospitalization within 30 days of that index admission would be considered a re-admission and counted in the total hospitalization cost.
- The Committee expressed concern that attributing costs to hospitals was inappropriate for heart failure patients and that the real accountability should be with the ambulatory providers. Furthermore, the 30-day time period for costs does not align with the typical disease progression for a heart failure patient. A longer period, perhaps 12 months, would be more appropriate for the chronic nature of this disease.
- The developer defended the attribution to the hospital by stating that heart failure is a leading cause of hospitalization for the elderly and it represented a high-leverage opportunity to measure and evaluate spending. Additionally, the 30-day time period was short enough that the associated spending would be attributable to the hospital admission.
- In addition to the risk adjustment discussion provided in the overarching issues section, the Committee was concerned that the developer did not do empiric measure-level validity testing for the measure as specified. The developers acknowledged that they relied on prior research on risk adjustment testing for mortality measures and also relied on face validity testing with their technical expert panel.

3. Feasibility: **H-16; M-3; L-0; I-0**

(3a. Byproduct of Care Processes; and 3b. Electronic sources; and 3c. Data Collection Strategy)

Rationale:

- The Committee had no concerns about the feasibility of the measure.

4. Use and Usability: H-4; M-10; L-6; I-1

(4a. Accountability/transparency (used in accountability w/in 3 yr, public reporting w/in 6 yr, or if new - credible plan); and 4b. Improvement – progress demonstrated (if new - credible rationale); and 4c. Unintended Consequences - benefits outweigh evidence of unintended negative consequences (to patients/populations); and 4d. Measure Deconstruction – can be deconstructed to facilitate transparency and understanding)

Rationale:

- The Committee had no concerns about the Use and Usability of the measure.

5. Related and Competing Measures

- No related or competing measures noted.

Standing Committee Recommendation for Endorsement: Y-10; N-11 [Consensus not reached]

6. Public and Member Comment: April 21, 2014 – May 21, 2014

- Several supportive comments for the measure were received, with commenters indicating that the measure addresses an area of high morbidity, mortality, and healthcare costs. Commenters stated that information shared by CMS with hospitals will allow for identification of high/low cost areas and focused improvement. Additionally, commenters raised several issues with the measure, which were discussed during the in-person meeting:
 - Appropriateness of attribution approach
 - Commenters stated that attributing the cost of the entire episode to the admitting hospital may be inappropriate to attribute the cost of the episode to the hospital as much of the care happens in an outpatient setting. Commenters stated that measures should assess processes and outcomes over which the measured entity (e.g., hospital, physician group) can exercise a reasonable level of control, and that these measures may be more appropriate for an organization accepting bundled payments on behalf of all measured entities.
 - The Committee acknowledged this concern; however, the Committee stated that increasingly hospitals are responsible for care delivered up to 30 days after discharge. Consequently, hospitals are in the unique position of being able to push coordination of care, and this measure may serve as an impetus for this to occur.
 - Adequacy of risk adjustment model
 - Several commenters stated that the low r-squared values for the measure (0.03) indicated that the risk model did not account for enough of the variation in measure scores and may not adequately account for patient case mix and severity. Moreover, commenters believe that the low level of reliability demonstrated illustrated another fundamental flaw of both measures—that they fail to adequately account for complicating conditions that patients have prior to an episode of care.
 - The developers explained that at lower patient volumes, there is less certainty when estimating cost. The measure uses a continuous outcome which results in a more accurate estimate than would result from a binary outcome.

Additionally, the measure uses hierarchical risk modeling that adjusts hospitals with low patient volume towards the mean.

- Approach to addressing transfer patients
 - Several commenters stated concern that the initial admitting hospital would be attributed cost for the episode when transferring patients to a second hospital, as the initial admitting hospital may have little control over the care that happens after the transfer.
 - The Committee acknowledged this concern; however, the Committee stated that increasingly hospitals are responsible for care delivered up to 30 days after discharge.
- Risk adjustment for socio-demographic factors
 - Several commenters stated that the risk adjustment models for the measures should capture socio-demographic factors, as there is robust evidence that such factors affect health outcomes, including resource use.
 - NQF acknowledged these concerns and clarified that NQF is in the early stages of reviewing our policy on risk adjusting for socio-demographic factors. The report referenced is a draft report that has recently been reviewed during an NQF member and public comment period; the recommendations have not yet been finalized. As such, we ask that Committees continue to evaluate measures according to our current guidelines, that measures not be adjusted for socio-demographic variables. If in the future the recommendations for adjusting for socio-demographic variables become NQF policy, measures needing this adjustment will be updated and reviewed by the Committee through measure maintenance.
 - The Committee acknowledged that the timing of the NQF risk adjustment report is not ideal; however, given the current NQF policy on adjusting for sociodemographic variables, the Committee requested that a recommendation be issued with the measure that when reported, the results should be stratified by sociodemographic variables.
- After considering all comments and thorough discussion, the Committee requested the opportunity to revote on endorsement for the measure. The results of that vote are below:
 - **Yes- 13; No-8**
- The measure is recommended for endorsement and pursuant with NQF process will be posted for NQF member voting.

7. NQF Member Voting: June 17, 2014- July 2, 2014

- Representatives of 17 member organizations voted.
- With 40% of the councils approving the measure, the voting results indicated that consensus was not reached among the membership.
- To further understand the rationale for the membership votes, NQF hosted conference calls with council leaders and NQF members to further discuss the issues.
 - 73 participants from 7 councils with broad distribution across the councils attended the membership call.
 - Staff compiled the major themes that arose from these consensus-building calls and shared them with the CSAC.

8. Consensus Standards Approval Committee (CSAC) Vote: August 12, 2014, Y-10; N-3

- The Consensus Standards Approval Committee (CSAC) pulled this measure on July 10, 2014, to further discuss NQF Member voting results indicating that consensus was not reached.
- NQF hosted a call on July 31, 2014 for members to discuss their concerns about the measure.
- CSAC reviewed the member voting results and themes from the membership call and endorsed this measure.

9. Board of Directors Vote: November 5, 2014

- The EC ratified endorsement with the following conditions:
 - **One- year Look Back Assessment of Unintended Consequences:** NQF staff will work with Cost and Resource Standing Committee and CMS to determine a plan for assessing potential unintended consequences of this measure in use. The evaluation of unintended consequences will be initiated in approximately one year and possible changes to the measures based on this data.
 - **Consideration for SDS trial period:** The Cost and Resource Use Standing Committee will consider whether the measure should be included in the NQF trial period for sociodemographic status adjustments.

10. Appeals: November 7, 2014- December 9, 2014

- NQF received an appeal for this measure from the American College of Cardiology (ACC). The appellants noted concerns with attribution, the use of stand-alone cost measures and the adjustment for sociodemographic variables.
- CSAC reviewed the appeal on January 13, 2015, and voted to uphold endorsement (92% approval).
- The BOD Executive Committee reviewed the appeal on February 4, 2015, and voted to uphold endorsement.

Appendix B: Measures Endorsed in Cost and Resource Use Since April 2012

NQF Number	Title	Steward
1557	Relative Resource Use for People with Diabetes	National Committee for Quality Assurance (NCQA)
1558	Relative Resource Use for People with Cardiovascular Conditions	National Committee for Quality Assurance (NCQA)
1560	Relative Resource Use (RRU) for People with Asthma	National Committee for Quality Assurance (NCQA)
1561	Relative Resource Use for People with Chronic Obstructive Pulmonary Disease (COPD)	National Committee for Quality Assurance (NCQA)
1598	Total Resource Use Population-based PMPM Index	HealthPartners
1604	Total Cost of Care Population-based PMPM Index	HealthPartners
2431	Hospital-level, Risk-standardized Payment Associated with a 30-day episode-of-care for Acute Myocardial Infarction (AMI)	Centers for Medicare & Medicaid Services (CMS) and Yale
2436	Hospital-level, Risk-standardized Payment Associated with a 30-day episode-of-care for Heart Failure (HF)	Centers for Medicare & Medicaid Services (CMS) and Yale
2158	Medicare Spending per Beneficiary (MSPB)	Centers for Medicare & Medicaid Services (CMS)

Appendix C: Cost and Resource Use Standing Committee, Technical Expert Panel, and NQF Staff

Standing Committee

Brent Asplin, MD, MPH (Co-Chair)

Catholic Health Partners
Cincinnati, OH

Lisa Latts, MD, MSPH, MBA, FACP (Co-Chair)

LML Health Solutions, LLC
Denver, CO

Ariel Bayewitz, MPH

WellPoint, Inc.
New York, NY

Lawrence Becker

Xerox Corporation
Rochester, NY

Mary Ann Clark, MHA

Intralign
Washington, DC

Cheryl Damberg, PhD

RAND Corporation
Santa Monica, CA

Jennifer Eames-Huff, MPH

Pacific Business Group on Health
San Francisco, CA

Nancy Garrett, PhD

Hennepin County Medical Center
St. Paul, MN

Andrea Gelzer, MD, MS, FACP

AmeriHealth Mercy Family of Companies
Philadelphia, PA

Stanley Hochberg, MD

Boston Medical Center
Boston, MA

Matthew McHugh, PhD, JD, MPH, RN, CRNP, FAAN

University of Pennsylvania
Philadelphia, PA

Martin Marciniak, MPP, PhD

GlaxoSmithKline
Research Triangle Park, NC

James Naessens, ScD, MPH

Mayo Clinic
Rochester, MN

Jack Needleman, PhD

UCLA Fielding School of Public Health
Los Angeles, CA

Janis Orlowski, MD, MACP

Association of American Medical Colleges
Washington, DC

Carolyn Pare

Minnesota Health Action Group
Bloomington, MN

John Ratliff, MD, FACS, FAANS

American Association of Neurological Surgeons
Stanford, CA

Andrew Ryan, PhD

University of Michigan School of Public Health
Ann Arbor, MI

Joseph Stephansky, PhD

Michigan Health & Hospital Association
East Tawas, MI

Lina Walker, PhD

AARP – Public Policy Institute
Washington, DC

William Weintraub, MD, FACC

Christiana Care Health System
Newark, DE

Herbert Wong, PhD

Agency for Healthcare Research and Quality
Rockville, MD

Dolores Yanagihara, MPH

Integrated Healthcare Association
Oakland, CA

Cardiovascular Technical Expert Panel

William Weintraub, MD, FACC (Chair)

Christiana Care Health System
Newark, DE

Thomas Kottke, MD, MSPH

HealthPartners
Bloomington, MN

Sana Al-Khatib, MD, MHS

Duke University Medical Center
Durham, NC

Leslie Cho, MD

Cleveland Clinic
Cleveland, OH

Edward (Ted) Gibbons, MD, FACC, FACP, FASE

Harborview Medical Center
Seattle, WA

Judd Hollander, MD, FACEP

The University of Pennsylvania
Philadelphia, PA

NQF Staff

Helen Burstin, MD, MPH

Chief Scientific Officer

Taroon Amin, MA, MPH

Senior Director

Quality Measurement

Ashlie Wilbon, RN, MPH

Managing Director

Quality Measurement

Lindsey Tighe, MS

Senior Project Manager

Quality Measurement

Quintin Dukes, MSHA

Project Manager

Quality Measurement

Ann Phillips, MHA

Project Analyst

Quality Measurement

Appendix D: Measure Specifications

1558 Relative Resource Use for People with Cardiovascular Conditions	34
2431 Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for Acute Myocardial Infarction (AMI).....	36
2436 Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for heart failure (HF)	38

1558 Relative Resource Use for People with Cardiovascular Conditions

STEWARD

National Committee for Quality Assurance

DESCRIPTION

The risk-adjusted relative resource use by health plan members with specific cardiovascular conditions during the measurement year.

RESOURCE USE MEASURE TYPE

Per capita (population- or patient-based)

DATA SOURCE

Administrative Claims

LEVEL OF ANALYSIS

Health Plan, Population : National, Population : Regional

CONSTRUCTION LOGIC DESCRIPTION

The measure reports total standard costs and frequency for all included services for which the organization has paid or expects to pay for the eligible population during a pre-specified measurement year. The eligible population for RCA includes all health plan members identified with significant cardiovascular disease.

Total standard costs are assigned to each service the member received during the measurement year by matching codes for services rendered to codes listed in the NCQA Standardized Price Tables (SPTs) (<https://www.ncqa.org/tabid/1437/Default.aspx>).

Standard costs are calculated and reported for the following service categories:

- Inpatient Facility
- Surgery and Procedure (inpatient and outpatient service categories)
- E&M (inpatient and outpatient service categories)
- Diagnostic Laboratory Services
- Diagnostic Imaging Services
- Pharmacy, Ambulatory

Service frequency counts are reported for all services for which the organization has paid or expects to pay for the eligible population during the treatment period. Organizations capture each eligible member's services rendered during the treatment period, reports these data to NCQA which then generates a service frequency report for the following:

1. Total Inpatient Facility: Discharges, Days, ALOS
2. Total Acute Inpatient: Discharges, Days, ALOS
- 2a. Total Acute Medicine: ALOS
- 2b. Total Acute Surgery: ALOS
5. Total Nonacute: Discharges, ALOS
6. ED Discharges

7. Pharmacy Utilization

7a. Generic Utilization, given the existence of a generic option

7b. Generic Substitution Rate

7c. Overall Generic Utilization

Other condition-specific categories. Service frequency counts are also reported to NCQA for the following select cardiac procedures:

1. Cardiac Catheterization

2. PCI

3. CABG

4. Carotid Endarterectomy

5. Carotid Artery Stenosis Diagnostic Test

6. Cardiac Computed Tomography

7. CAD Diagnostic Test Using EBCT/Nuclear Imaging Stress Test

CLINICAL FRAMEWORK DESCRIPTION

This measure addresses the resource use of members identified with significant cardiovascular disease. Major cardiac events (AMI, CABG, PCI) and /or cardiovascular-related diagnoses (ischemic vascular disease) are used to identify members for inclusion in the eligible population and the results are adjusted to account for age, gender, and HCC-RRU risk classifications that predict cost variability (Refer to Attachment S_8_3a_Clinical_Logic.pdf for additional information).

COSTING METHOD

Standardized pricing

TESTED POPULATION

Populations at Risk

RESOURCE USE SERVICE CATEGORIES

Inpatient services: Inpatient facility services; Inpatient services: Evaluation and management; Inpatient services: Procedures and surgeries; Inpatient services: Imaging and diagnostic; Inpatient services: Lab services; Inpatient services: Admissions/discharges; Ambulatory services: Outpatient facility services; Ambulatory services: Emergency Department; Ambulatory services: Pharmacy; Ambulatory services: Evaluation and management; Ambulatory services: Procedures and surgeries; Ambulatory services: Imaging and diagnostic; Ambulatory services: Lab services

ATTRIBUTION APPROACH

Using administrative claims data submitted by all organizations, NCQA estimates the expected RRU amounts for each clinical condition for each organization. RRU index amounts are based on the ratio of observed to expected amounts. Results can be assessed at an overall basis, across all members and major clinical conditions, by service category or for a member cohort within a condition. Relative resource use is calculated at the plan-level and no attribution of resource use is made below this level. Attribution of resource use to a particular NCQA submission is based on the product line and reporting type of the plan that the member was enrolled in as of the end of the measure year.

RISK ADJUSTMENT

Statistical risk model

STRATIFICATION

NCQA collects resource measures at the plan level and summarizes across reporting cohorts along the following dimensions:

- a) Product line (3 levels): commercial, Medicaid, and Medicare;
- b) Reporting type (2 levels): HMO and PPO;
- c) Area level (2 levels): national and region;
- d) Resource use or utilization (11 levels): inpatient facility, procedure and surgery (inpatient and outpatient), evaluation and management (inpatient and outpatient), laboratory services, imaging services, ambulatory pharmacy, inpatient discharges, emergency department discharges.

Although the HCC-RRU risk adjustment accounts for confounding variables such as age and gender, in order to assist organizations in using their results to identify opportunities to improve, NCQA reports RRU results using the HCC-RRU cohorts as reporting strata by age and gender cohorts. Reporting the measure results by these strata increases the ability of the reporting organizations to target areas for improvement without having to reverse engineer their measure results.

2431 Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for Acute Myocardial Infarction (AMI)

STEWARD

Centers for Medicare & Medicaid Services

DESCRIPTION

This measure estimates hospital-level, risk-standardized payment for an AMI episode-of-care starting with inpatient admission to a short term acute-care facility and extending 30 days post-admission for Medicare fee-for-service (FFS) patients who are 65 years of age or older with a principal discharge diagnosis of AMI.

RESOURCE USE MEASURE TYPE

Per episode

DATA SOURCE

Administrative Claims

LEVEL OF ANALYSIS

Facility

CONSTRUCTION LOGIC DESCRIPTION

This measure estimates hospital-level, risk-standardized payments for a 30-day episode of care for AMI. To this end, we constructed a cohort of AMI patients by examining the primary discharge diagnosis in administrative claims data. Specifically, we included Medicare fee-for-service patients 65 or older with a primary discharge diagnosis of 410.xx excluding 410.x2. We

then applied several exclusion criteria as detailed in S.9.1. Once our cohort was finalized we examined all payments for these patients (including co-pays, co-insurance, and deductibles) that occurred within 30 days of the index admission. We included payments for all care settings, except Part D. We standardized payments across providers by removing or averaging geographic differences and removing policy adjustments from the total payment for that service. These payments were then assigned to the initial admitting hospital. As part of our model, we risk adjusted these payments for patient comorbidities listed in outpatient and inpatient claims in the 12 months prior to the index admission as well as the secondary diagnoses included in the index admission. We then used hierarchical generalized linear regression models to calculate a risk-standardized payment for each hospital.

CLINICAL FRAMEWORK DESCRIPTION

AMI is a common condition in the elderly with substantial variability in payments due to different practice patterns. Quality measures for AMI such as 30-day AMI risk-standardized mortality rate (RSMR) are already publicly reported. In the context of its publicly reported quality measures, AMI is an ideal condition in which to assess payments for Medicare patients and relative hospital value. Therefore we created a measure of payments for a 30-day episode of care for AMI that could be aligned with CMS's 30-day AMI mortality and readmission measures. This will allow CMS to assess the value of care provided for these episodes.

The measure uses Condition Categories (CCs) to adjust for patient case-mix across hospitals.

Details of our risk-adjustment strategy can be found in our technical report at

<https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1228773321137>.

This measure is for patients who are admitted with AMI. We determine this by examining the primary discharge diagnosis code in the administrative data. If a patient has a primary discharge diagnosis of any other condition, even if this includes a secondary diagnosis of AMI, this admission is not considered as an index admission. Therefore, the concurrency of clinical events is not applicable for this measure. However, the model does risk adjust for comorbidities listed in outpatient and inpatient claims in the 12 months prior to the index admission as well as the secondary diagnoses included in the index admission that are not considered complications of care.

COSTING METHOD

Standardized pricing

TESTED POPULATION

Senior Care

RESOURCE USE SERVICE CATEGORIES

Inpatient services: Inpatient facility services; Inpatient services: Evaluation and management; Inpatient services: Procedures and surgeries; Inpatient services: Imaging and diagnostic; Inpatient services: Lab services; Inpatient services: Admissions/discharges; Inpatient services: Labor (hours, FTE, etc.); Ambulatory services: Outpatient facility services; Ambulatory services: Emergency Department; Ambulatory services: Evaluation and management; Ambulatory services: Procedures and surgeries; Ambulatory services: Imaging and diagnostic; Ambulatory services: Lab services; Ambulatory services: Labor (hours, FTE, etc.); Durable Medical Equipment (DME); Other services not listed

ATTRIBUTION APPROACH

The measure attributes all payments incurred during the 30-day episode to the original admitting hospital. We assign all payments to the admitting hospital because decisions made at the admitting hospital affect payments for care in the inpatient setting as well as the immediate post-discharge period. Furthermore, attributing payments for a continuous episode of care to admitting hospitals may reveal practice variations in the full care of the illness that can result in increased payments. For patients who are admitted and then transferred to another hospital during the original index admission, we assign all payments to the original admitting hospital since this hospital is responsible for the initial care decisions and the decision to transfer the patient.

RISK ADJUSTMENT

Statistical risk model

STRATIFICATION

This measure is not stratified.

2436 Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for heart failure (HF)

STEWARD

Centers for Medicare & Medicaid Services

DESCRIPTION

This measure estimates hospital-level, risk-standardized payment for a HF episode of care starting with inpatient admission to a short term acute-care facility and extending 30 days post-admission for Medicare fee-for-service (FFS) patients who are 65 years of age or older with a principal discharge diagnosis of HF.

RESOURCE USE MEASURE TYPE

Per episode

DATA SOURCE

Administrative Claims

LEVEL OF ANALYSIS

Facility

CONSTRUCTION LOGIC DESCRIPTION

This measure estimates hospital-level, risk-standardized payments for a 30-day episode of care for HF. To this end, we constructed a cohort of HF patients by examining the primary discharge diagnosis in administrative claims data. Specifically, we included Medicare fee-for-service patients 65 or older with a primary discharge diagnosis of 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, and 428.9. We then applied several exclusion criteria as detailed in S.9.1. Once our cohort was finalized we examined all payments for these patients (including co-pays, co-insurance, and deductibles) that occurred within 30

days of the index admission. We included payments for all care settings, except Part D. We standardized payments across providers by removing or averaging geographic differences and removing policy adjustments from the total payment for that service. These payments were then assigned to the initial admitting hospital. As part of our model, we risk adjusted these payments for patient comorbidities listed in outpatient and inpatient claims in the 12 months prior to the index admission as well as the secondary diagnoses included in the index admission. We then used hierarchical generalized linear regression models to calculate a risk-standardized payment for each hospital.

CLINICAL FRAMEWORK DESCRIPTION

HF is a common condition in the elderly with substantial variability in payments due to different practice patterns. Quality measures for HF such as 30-day HF risk-standardized mortality rate (RSMR) are already publicly reported. In the context of its publicly reported quality measures, HF is an ideal condition in which to assess payments for Medicare patients and relative hospital value. Therefore we created a measure of payments for a 30-day episode of care for HF that could be aligned with CMS's 30-day HF mortality and readmission measures. This will allow CMS to assess the value of care provided for these episodes.

The measure uses Condition Categories (CCs) to adjust for patient case-mix across hospitals. Details of our risk-adjustment strategy can be found in our attached technical report.

This measure is for patients who are admitted with HF. We determine this by examining the primary discharge diagnosis code in the administrative data. If a patient has a primary discharge diagnosis of any other condition, even if this includes a secondary diagnosis of HF, this admission is not considered as an index admission. Therefore, the concurrency of clinical events is not applicable for this measure. However, the model does risk adjust for comorbidities listed in outpatient and inpatient claims in the 12 months prior to the index admission as well as the secondary diagnoses included in the index admission that are not considered complications of care.

COSTING METHOD

Standardized pricing

TESTED POPULATION

Senior Care

RESOURCE USE SERVICE CATEGORIES

Inpatient services: Inpatient facility services; Inpatient services: Evaluation and management; Inpatient services: Procedures and surgeries; Inpatient services: Imaging and diagnostic; Inpatient services: Lab services; Inpatient services: Admissions/discharges; Inpatient services: Labor (hours, FTE, etc.); Ambulatory services: Outpatient facility services; Ambulatory services: Emergency Department; Ambulatory services: Evaluation and management; Ambulatory services: Procedures and surgeries; Ambulatory services: Imaging and diagnostic; Ambulatory services: Lab services; Ambulatory services: Labor (hours, FTE, etc.); Durable Medical Equipment (DME); Other services not listed

ATTRIBUTION APPROACH

The measure attributes all payments incurred during the 30-day episode to the original admitting hospital. We assign all payments to the admitting hospital because decisions made at the admitting hospital affect payments for care in the inpatient setting as well as the immediate

post-discharge period. Furthermore, attributing payments for a continuous episode of care to admitting hospitals may reveal practice variations in the full care of the illness that can result in increased payments. For patients who are admitted and then transferred to another hospital during the original index admission, we assign all payments to the original admitting hospital since this hospital is responsible for the initial care decisions and the decision to transfer the patient.

RISK ADJUSTMENT

Statistical risk model

STRATIFICATION

This measure is not stratified.

National Quality Forum
1030 15th St NW, Suite 800
Washington, DC 20005
<http://www.qualityforum.org>

ISBN 978-1-933875-90-3
©2015 National Quality Forum