NATIONAL QUALITY FORUM
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Meeting Summary

Cardiovascular Standing Committee – Fall 2022 Measure Evaluation Web Meeting

The National Quality Forum (NQF) convened the Cardiovascular Standing Committee for a web meeting on February 23, 2023, to evaluate four measures for the fall 2022 cycle.

Welcome, Review of Meeting Objectives, Introductions, and Overview of Evaluation and Voting Process

Udara Perera, NQF director, welcomed the Standing Committee and participants to the web meeting. Dr. Elizabeth Drye, NQF's chief scientific officer, informed the Standing Committee that the Centers for Medicare & Medicaid Services' (CMS) contract to serve as the consensus-based entity will end on March 26 of this year. CMS recently completed a competitive process to award the next phase of work and announced its award decision: NQF was not awarded the contract, so its work will conclude on March 26, 2023. Dr. Drye further mentioned that NQF will be working with CMS and the successor contractor in the weeks ahead to make a smooth transition, which will include further communication with this Standing Committee and other NQF Committee volunteers. However, Dr. Drye underscored that this does not change the Standing Committee's focus for the measure evaluation meeting, and NQF looks forward to working with the Committee to review the fall 2022 measures.

NQF staff reviewed the meeting objectives. Following the review, the Standing Committee members each introduced themselves and disclosed any conflicts of interest. None of the Standing Committee members had any conflicts of interest. Additionally, Isaac Sakyi, NQF senior manager, reviewed the Consensus Development Process (CDP) and the measure evaluation criteria.

Some Standing Committee members were unable to attend the entire meeting due to early departures and late arrivals. The vote totals reflect members present and eligible to vote. The quorum (16 out of 23 active Standing Committee members) required for voting was maintained for the entirety of the meeting. Voting results are provided below.

Measure Evaluation

During the meeting, the Cardiovascular Standing Committee evaluated four measures (two maintenance and two new) for endorsement consideration. Prior to the review of the measures, Dr. Taroon Amin, NQF consultant, noted that for the fall 2022 cycle, measures were reviewed by the Scientific Methods Panel (SMP) if they were deemed as complex (i.e., outcome, cost, composite, and instrument-based measures) and/or if they included testing methods that are not commonly used. For the Cardiovascular measures under review, one of the four measures, NQF #2377, was evaluated by the SMP.

A measure is recommended for endorsement by the Standing Committee when greater than 60 percent of eligible voting members select a passing vote option (i.e., Pass, High and Moderate, or Yes) on all must-pass criteria and overall suitability for endorsement. A measure is not recommended for endorsement when less than 40 percent of voting members select a passing vote option on any must-pass criterion or overall suitability for endorsement. If a measure does not pass a must-pass criterion, voting during the measure evaluation meeting will cease. The Standing Committee will not re-vote on

the measures during the post-comment meeting unless the Standing Committee decides to reconsider the measure(s) based on submitted comments or a formal reconsideration request from the developer. The Standing Committee has not reached consensus on the measure if between 40 and 60 percent of eligible voting members select a passing vote option on any must-pass criterion or overall suitability for endorsement. The Standing Committee will re-vote on criteria for which it did not reach consensus and potentially on overall suitability for endorsement during the post-comment web meeting.

Voting Legend:

- *Evidence (Outcome Measures) and Use:* Pass/No Pass
    - *Insufficient Evidence With Exception:* Yes/No – To proceed with "Insufficient Evidence With Exception," more than 60% of the Standing Committee must vote "Insufficient" for evidence. After which point, an exception to the evidence is granted if the more than 60% of the Standing Committee votes "Yes."
- *Accepting the SMP Rating and Overall Suitability for Endorsement*: Yes/No
- *All Other Criterion:* H – High; M – Moderate; L – Low; I – Insufficient; NA – Not Applicable
- *Maintenance Criteria for Which the Standing Committee Decided Additional Discussion/Vote Was Not Needed (Evidence, Reliability, Validity only):* Accepted Previous Evaluation

NQF #2377 Overall Defect-Free Care for AMI (American College of Cardiology)

Description: The proportion of acute MI patients >= 18 years of age that receive "perfect care" based upon their eligibility for each performance measure; **Measure Type**: Composite; **Level of Analysis**: Facility; **Setting of Care**: Hospital; **Data Source**: Electronic Records; Claims

Measure Steward/Developer Representatives at the Meeting

- Heidi Bossley – American College of Cardiology
- Kristina Blankinship – American College of Cardiology
- Jarrott Mayfield – American College of Cardiology

Standing Committee Votes

- **Evidence**: Total Votes-21; H-4; M-16; L-1; I-0 (20/21 – 95.0%, Pass)
- **Performance Gap**: Total Votes-21; H-10; M-11; L-0; I-0 (21/21 – 100.0%, Pass)
- **Composite – Quality Construct and Rationale**: Total Votes-21; H-9; M-12; L-0; I-0 (21/21 – 100.0%, Pass)
- **Reliability**: This measure was evaluated by the SMP and was rated as moderate for reliability. The Standing Committee accepted the SMP's moderate rating for reliability: Total Votes-19; Yes-19; No-0 (19/19 – 100.0%, Pass)
- **Validity**: This measure was evaluated by the SMP and was rated as moderate for validity. The Standing Committee accepted the SMP's moderate rating for validity: Total Votes-20; Yes-20; No-0 (20/20 – 100.0%, Pass)
- **Composite Quality Construct:** Total Votes-20; H-2; M-17; L-1; I-0 (19/20 – 95.0%, Pass)
- **Feasibility**: Total Votes-20; H-9; M-9; L-2; I-0 (18/20 – 90.0%, Pass)
- **Use**: Total Votes-21; Pass-21; No Pass-0 (21/21 – 100.0%, Pass)
- **Usability**: Total Votes-21; H-11; M-9; L-0; I-0 (20/20 – 100.0%, Pass)

- **Standing Committee Recommendation for Endorsement:** Total Votes-20; Yes-20; No-0 (20/20 – 100.0%, Pass)

The Standing Committee recommended the measure for continued endorsement.

This facility-level measure was originally endorsed in 2014 and last retained endorsement in 2019. This measure is nationally and publicly reported by CMS. The developer noted that this is part of the American College of Cardiology's (ACC) chest pain/myocardial infarction registry, which captures data on patients with acute myocardial infarction (AMI) and divides them into ST-elevation myocardial infarction (STEMI) and non–ST-elevation myocardial infarction (NSTEMI). No public comments were received for this measure prior to the measure evaluation meeting.

The developer addressed two items that NQF highlighted during the review of this measure. First, this measure received a preliminary analysis rating of insufficient for usability. The developer noted that the information was omitted in error. In addition, the developer clarified that performance rates for the composite measure have increased over time, even while the denominator continues to grow. The developer also clarified that in 2011, the performance rates were 66.8 percent but increased year over year to 70.8 percent by 2017, suggesting that outcomes are improving as more patients with AMI are receiving defect-free care over time. The developer also noted that several questions were asked regarding the exclusion rate of 42 percent. The developer continued to clarify that the reason for the exclusions is that this is an all-or-none composite measure and it is composed of several individual metrics that have their own exclusion criteria.

A Standing Committee member noted that three new measures are in the composite. One measure is the time from the first medical contact to the balloon time in STEMI. The Standing Committee member also noted that the first medical contact may be outside the control of the hospital. Particularly in rural areas, the transport time may be significant, and therefore, it is unclear whether the threshold should be 90 or 120 minutes. Another Standing Committee member noted that this would be problematic in rural areas and with those hospitals with cardiac catheterization laboratories that are not staffed 24 hours a day. Following the discussion, the Standing Committee passed the measure on evidence.

During the discussion on performance gap, the Standing Committee acknowledged that the median rate of performance for defect-free care across 764 hospitals was 72.32 percent using data from the National Cardiovascular Data Registry (NCDR) Chest Pain-MI Registry in 2019. Additionally, the developer reported the mean performance of the measure as 58.47 percent, with a standard deviation (SD) of 21.24. The developer highlighted the "right-skewed" distribution of this measure, which shows that most hospitals were between 56 to 100 percent. There were also disparities by race and ethnicity, gender, age, and insurance status. No additional discussion occurred, and the Standing Committee passed the measure on performance gap.

Regarding the composite quality construct, the developer emphasized the benefits of a composite measure to reduce the information burden by distilling the available indicators into a simple summary, track a wider range of metrics, and translate several variables into a single decision. While the Standing Committee did acknowledge that all of the individual component measures are concordant with the guidelines and that they, as a composite, reduce the measurement burden, some Standing Committee members also noted that there was no strong correlation between the composite measure and 30-day mortality for AMI. The Standing Committee questioned whether angiotensin receptor-neprilysin inhibitors (ARNIs) (e.g., Entresto) were included in the discharge measure, considering they are included in the clinical guidelines for patients with heart failure. The developer noted that ARNIs were included because the medication valsartan—one of the components of ARNIs—is an angiotensin II receptor blocker (ARB), which is included in the measure. The developer continued to note that some of the

measures in the composite would not influence 30-day mortality, such as referral to cardiac rehabilitation. They would likely have a longer-term effect outside of the 30 days, which has been seen in randomized trials. Another Standing Committee member commented about beta-blocker use in STEMI within recent guidelines, which indicated that there is no benefit of beta-blockers in normal left ventricular (LV) function. A Standing Committee member noted that this measure is based on older evidence and that clinicians do not prescribe beta-blockers at discharge for patients with normal LV function. Following this discussion, the Standing Committee voted to pass the measure on composite quality construct.

The SMP reviewed the measure prior to the Standing Committee meeting, and the Standing Committee accepted the SMP's ratings for reliability and validity. During the discussion on validity, the Standing Committee reviewed the measure exclusions. A Standing Committee member highlighted that some patients may be in palliative care only and therefore should be excluded. The developer reported that a total of 42.3 percent of hospital stays were ineligible for the measure. The Standing Committee voted to accept the SMP's moderate ratings for reliability and validity.

During the discussion on feasibility, the Standing Committee acknowledged that the measure has been implemented successfully in many hospitals. In addition, all data elements are in defined fields in electronic clinical data and generated in the provision of healthcare. However, a Standing Committee member expressed concern about hospitals that do not have electronic health records (EHRs) being unable to participate in the measure because they would be unable to submit data to the NCDR Registry. The developer clarified that the NCDR did not require an interface with the EHRs. The Standing Committee did not raise any additional concerns and passed the measure on feasibility.

With respect to use and usability, the Standing Committee acknowledged that this existing measure is publicly reported through multiple registries and in CMS-bundled payment programs. The Standing Committee also noted that some positive changes had been made in this measure over time. The Standing Committee had no concerns and passed the measure on use and usability. Raising no further questions or concerns, the Standing Committee also passed the measure on overall suitability for endorsement.

The Standing Committee reviewed a related measure: NQF #3613e *Appropriate Treatment for ST-Segment Elevation for Myocardial Infarction (STEMI) Patients in the Emergency Department (ED).* A Standing Committee member recommended increasing the number of minutes from the first medical contact to balloon to 120 minutes (from 90 minutes) to be harmonized with NQF #3613e, which uses 90 minutes but also uses the hospital arrival as time zero.

NQF #2558 Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Coronary Artery Bypass Graft (CABG) Surgery (Centers for Medicare & Medicaid Services (CMS)/Yale New Haven Health Services Corporation – Center for Outcomes Research and Evaluation (Yale CORE)

Description: Hospital 30-day, all-cause, risk-standardized mortality rate (RSMR) following coronary artery bypass graft (CABG) surgery; **Measure Type**: Outcome; **Level of Analysis**: Facility; **Setting of Care**: Hospital; **Data Source**: Electronic Records; Claims

Measure Steward/Developer Representatives at the Meeting

Doris Peter – Yale CORE
Huihui Yu – Yale CORE
Jackie Grady – Yale CORE

Standing Committee Votes

- **Evidence**: Total Votes-19; Pass-19; No Pass-0 (19/19 – 100.0%, Pass)
- **Performance Gap**: Total Votes-20; H-3; M-17; L-0; I-0 (20/20 – 100.0%, Pass)
- **Reliability**: Total Votes-19; H-0; M-18; L-1; I-0 (18/19 – 95.0%, Pass)
- **Validity**: Total Votes-18; H-2; M-16; L-0; I-0 (18/18 – 100.0%, Pass)
- **Feasibility**: Total Votes-18; H-11; M-7; L-0; I-0 (18/18 – 100.0%, Pass)
- **Use**: Total Votes-17; Pass-17; No Pass-0 (17/17 – 100.0%, Pass)
- **Usability**: Total Votes-18; H-0; M-18; L-0; I-0 (18/18 – 100.0%, Pass)
- **Standing Committee Recommendation for Endorsement:** Total Votes-18; Yes-18; No-0 (18/18 – 100.0%, Pass)

The Standing Committee recommended the measure for continued endorsement.

This facility-level measure was originally endorsed in 2014 and re-endorsed in 2018 and has been reported on Hospital Compare since 2015. During the presentation of the measure, the developer stated that mortality in following CABG surgery is one of the measures with data that patients can use when considering a procedure. The measure is not risk-adjusted for race or socioeconomic status. Prior to the measure evaluation meeting, two public comments were received that raised concerns about the scientific acceptability of this measure.

In its review of the evidence, the Standing Committee acknowledged that the developer provided two additional studies that had been published since the last submission. These studies examined the improvements in care that can reduce 30-day mortality rates following isolated CABG procedures. High-volume hospitals were found to have lower odds of mortality compared to low-volume hospitals. Also, a study examining 30-day mortality following cardiac surgical operations found that 98.4 percent of deaths within 30 days were attributable to the index operation. The Standing Committee's lead discussant stated that the evidence for the measure was strong. In addition, one or more clinical actions can be performed to impact the measure. With no concerns raised, the Standing Committee passed the measure on evidence.

Moving to performance gap, the Standing Committee noted that a recent study found that the median rate of adverse outcomes for an isolated CABG procedure was 22.1 percent, with an inter-decile range of 15 to 31.4 percent. The previous submission (using data from July 2013 – June 2016) found mean RSMRs of 3.3 percent (SD=0.9) and a range of 1.3 to 7.4 percent. The current submission (using data from July 2016 – June 2019) found mean RSMRs of 3.1 percent (SD=0.7) and a range of 1.4 to 6.8 percent. The lead discussant stated that median rates for adverse outcomes were variable between hospitals. There were also moderate differences between race and socioeconomic status. One Standing Committee member noted that it is reassuring that the measure indicates a decrease in disparities. Another Standing Committee member raised concern with the measure not being adjusted for disparities. An additional Standing Committee member stated that risk adjustment could give hospitals a pass for poorer outcomes in patients with lower socioeconomic status. Moving to a vote, the Standing Committee passed the measure on performance gap.

For reliability, the Standing Committee noted that the developer conducted signal-to-noise testing, demonstrating that the measure is reliable. The Standing Committee also noted lower reliability in

lower-volume hospitals. In the lowest-volume hospitals, the reliability was 0.59, whereas in hospitals with more volume, the reliability was higher. The developer clarified that small hospitals do not participate in public reporting because the scores are not reliable at lower-case volumes. A Standing Committee member stated that it is problematic for patients that small hospitals are not reported. The developer explained that while adding more years of data would increase volume, it would also increase the lag in reporting time due to the use of older data. CMS is considering adding Medicare Advantage beneficiaries, which would increase the volume for a hospital using this measure. The Standing Committee did not raise any additional concerns and passed the measure on reliability.

For validity, the Standing Committee noted that construct validity testing was conducted by comparing hospital performance on the RSMR to the Society of Thoracic Surgeons' (STS) CABG Composite Star Rating, the mortality group score of CMS' Overall Hospital Star Ratings, and the CABG procedural volume. The overall correlation between CMS' 30-day CABG measure scores and the STS Composite Star Rating was in the expected direction of -0.382. However, the statistical significance of this correlation was not provided. The 30-day CABG RSMRs correlation with CMS' Hospital Star Rating mortality group scores was moderate and negatively correlated (-0.445, $p<0.0001$), as hypothesized by the developer. This relationship was maintained even after removing the CABG mortality measure from the Star Rating mortality group (-0.276, $p<0.0001$). The overall correlation of CABG volume and 30-day CABG RSMR was also in the expected range (-0.214, $p<0.05$). A Standing Committee member stated that the correlation between the measures is a weak form of validation and it would be better to associate the measure between in-hospital process and outcome. Following this discussion, the Standing Committee passed the measure on validity.

Regarding feasibility, there are no associated license fees, all data are in electronic fields, and all data are gathered in the regular provision of care. One Standing Committee member stated that in the future, hospitals could use EHRs to report this measure. However, another Standing Committee member stated that mortality was easier to extract from claims data. Raising no major concerns, the Standing Committee passed the measure on feasibility.

For use, a Standing Committee member noted that this measure is publicly reported and used in accountability programs. The Standing Committee did not have any concerns and passed the measure on use. For usability, a Standing Committee member raised concerns about low-volume hospitals not reporting. Following the discussion, the Standing Committee voted to pass the measure on usability. Raising no further questions or concerns, the Standing Committee also passed the measure on overall suitability for endorsement.

The Standing Committee reviewed three related measures:

- NQF #0696 STS CABG Composite Score
- NQF #1502 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair + CABG Surgery
- NQF #2515 Hospital 30-Day, All-Cause, Unplanned, Risk-Standardized Readmission Rate (RSRR) Following Coronary Artery Bypass Graft (CABG) Surgery

A Standing Committee member commented that harmonization could be challenging if the risk models for the measures are fundamentally different. The Standing Committee agreed that these measures are harmonized to the extent possible with NQF #2558.

NQF #3716 CVD Risk Assessment Measure – Proportion of Pregnant/Postpartum Patients That Receive CVD Risk Assessment With a Standardized Tool (University of California, Irvine)

Description: The University of California, Irvine (UCI) implemented and tested a CVD risk assessment algorithm that can be integrated into the electronic health record (EHR) system that immediately identifies patients who are at increased risk for CVD; **Measure Type**: Process; **Level of Analysis**: Facility; **Setting of Care**: Hospital; **Data Source**: Electronic Records

Measure Steward/Developer Representatives at the Meeting

Afshan Hameed - University of California, Irvine

Standing Committee Votes

- **Evidence**: Total Votes-16; H-0; M-3; L-4; I-9 (3/16 – 19.0%, No Pass)
- **Performance Gap**: Vote Not Taken
- **Reliability**: Vote Not Taken
- **Validity**: Vote Not Taken
- **Feasibility**: Vote Not Taken
- **Use**: Vote Not Taken
- **Usability**: Vote Not Taken
- **Standing Committee Recommendation for Endorsement:** Vote Not Taken

The Standing Committee did not recommend the measure for initial endorsement.

This facility-level measure was newly submitted for endorsement. The developer presented the measure and explained that cardiovascular disease is the leading cause of mortality in pregnancy-related deaths. Black patients have three to four times increased risk of cardiovascular deaths compared to other ethnic groups, and 25 percent of these deaths could have been prevented if heart disease were detected in a timely manner. This led to the cardiovascular risk assessment algorithm in obstetric care, which has been used by several groups. The developer noted that this measure has been integrated into the EHR at three hospitals. The developer further commented that the measure was reliable and was also reviewed by a technical expert panel (TEP), which agreed it could distinguish between good and poor quality care.

The developer also noted maternal mortality literature reviews from 2005 to 2006, which found that symptoms, such as shortness of breath, are disregarded and that women later die. A study published on 850 patients found that of the 20 percent screen-positive rates in New York among Black women and 5 percent in California, 30 percent had some form of cardiovascular disease. In addition, five to six patients with severe cardiovascular disease were identified by the developer's cardiovascular tool. A Standing Committee member inquired about the measure's use in the emergency department (ED). The developer informed the member that a grant is underway at the University of Pennsylvania to consider implementing the measure in the ED.

One Standing Committee member also stated that the measure is important for educating patients and that implementing this measure could have benefits with regard to patient care. Another Standing Committee member stated that this is an important issue that needs to be addressed for maternity health. The long-term plan is to build the *Improving Health Care Response to Cardiovascular Disease in Pregnancy and Postpartum* Toolkit into EHRs. One Standing Committee member noted concerns

regarding the implementation of this tool and unintended consequences across the country: Some hospitals do not have EHRs, and the measure may represent a burden on providers to implement such a measure.

Standing Committee members agreed that based on the evidence, there is no clear association between the specific instrument and a specific health outcome. Following the discussion, the Standing Committee voted not to pass the measure on evidence—a must-past criterion. As a result, related and competing measures were not reviewed for this measure.

NQF #3735 CVD Risk Follow-Up Measure – Proportion of Patients With a Positive CVD Risk Assessment Who Receive Follow-Up Care (University of California, Irvine)

Description: All pregnant and postpartum patients need to be systematically assessed for cardiovascular disease. Once identified as being at risk for cardiovascular disease, follow-up cardiac tests and consultations are scheduled. The University of California, Irvine implemented and tested a standardized cardiovascular risk assessment algorithm that can be integrated into the EHR system and provides an immediate triage of patients as low and high risk for cardiovascular disease. This measure assesses the rate of pregnant and postpartum patients who are determined to be at risk for cardiovascular disease using a standardized risk assessment who received appropriate follow-up in the form of cardiology consultations and tests.; **Measure Type:** Process**; Level of Analysis:** Facility**; Setting of Care:** Hospital**; Data Source:** Electronic Records

Measure Steward/Developer Representatives at the Meeting

Afshan Hameed – University of California, Irvine

Standing Committee Votes

- **Evidence**: Total Votes-18; H-0; M-1; L-2; I-15 (1/18 – 6.0%, No Pass)
    - **Insufficient Evidence With Exception**: Total Votes-18; Insufficient Evidence With Exception – 2; No exception – 16 (2/18 – 11.0%, No exception)
- **Performance Gap**: Vote Not Taken
- **Reliability**: Vote Not Taken
- **Validity**: Vote Not Taken
- **Feasibility**: Vote Not Taken
- **Use**: Vote Not Taken
- **Usability**: Vote Not Taken
- **Standing Committee Recommendation for Endorsement**: Vote Not Taken

The Standing Committee did not recommend the measure for initial endorsement.

This facility-level measure was newly submitted for endorsement. The developer stated that the background was identical to the previous measure. This measure assesses pregnant patients who are found to be at increased risk of cardiovascular disease who have received consultation or cardiac tests. The Standing Committee first reviewed the evidence supporting the measure. Like the previous measure, direct evidence was not provided to demonstrate that patients who are referred for follow-up have better outcomes.

A Standing Committee member stated that this measure's endorsement was contingent on the prior measure being approved. The developer asked the Standing Committee what outcome would be acceptable for this measure. A Standing Committee member replied that at a minimum, the measure should identify severe disease where detection could impact outcomes (e.g., heart failure with reduced ejection fracture). However, to be approved as a national measure, the measure needs to demonstrate a difference in outcomes compared to a control group. Another Standing Committee member stated that the evidence would involve implementation of the *Improving Health Care Response to Cardiovascular Disease in Pregnancy and Postpartum* Toolkit and examining all-cause mortality and cardiovascular mortality. In addition, the measure could be implemented in a clustered randomized trial to examine outcomes.

The Standing Committee voted not to pass the measure on evidence due to insufficient evidence. After the vote was taken, Dr. Amin noted that NQF guidance does allow the Standing Committee the opportunity to rate this measure as insufficient evidence with exception if there is an acceptable or beneficial rationale to hold providers accountable for performance in the absence of empirical evidence. The Standing Committee subsequently voted on the evidence exception but ultimately did not vote to grant an exception to the evidence. Therefore, the measure did not pass on evidence—a must-pass criterion. As a result, related and competing measures were not reviewed for this measure.

Public Comment

Dr. Amin opened the lines for NQF member and public comments. No public comments were provided at this time.

Next Steps

Tristan Wind, NQF analyst, provided an overview of the next steps. Mr. Wind stated that NQF staff will begin drafting the meeting summary of the Standing Committee's deliberations. Dr. Amin thanked the Standing Committee for its time, engagement, and participation in this work and adjourned the call.