TO: Consensus Standards Approval Committee (CSAC)

FR: Melinda Murphy and Andrew Lyzenga

RE: Surgery Member Voting Results

DA: August 3, 2015

The CSAC will review recommendations from the Surgery Phase 2 project at its August 11 conference call.

This memo includes a summary of the project, recommended measures, and responses to the public and member comments.

Member voting on these recommended measures ended on July 27, 2015.

Accompanying this memo are the following documents:

1. **Surgery Phase 2 Draft Report.** The draft report has been updated to reflect the changes made following Standing Committee discussion of public and member comments.

2. **Comment table**. This table lists seven post-evaluation comments received and the NQF/Standing Committee responses.

CSAC ACTION REQUIRED

Pursuant to the CDP, the CSAC may consider approval of recommendations for 23 candidate consensus standards.

Surgery Phase 2 Measures Recommended for Endorsement:

- 0115: Risk-Adjusted Surgical Re-exploration
- 0118: Anti-Lipid Treatment at Discharge
- 0120: Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR)
- 0121: Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement
- 0122: Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement + CABG Surgery
- 0123: Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery
- 0130: Risk-Adjusted Deep Sternal Wound Infection Rate
- 0236: Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery
- 0354: Hip Fracture Mortality Rate (IQI 19)
- 0465: Perioperative Anti-Platelet Therapy for Patients Undergoing Carotid Endarterectomy
- 0533: Postoperative Respiratory Failure Rate (PSI 11)
- 0696: STS CABG Composite Score
- 0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by 5 STAT Mortality Categories
- 0733: Operative Mortality Stratified by the 5 STAT Mortality Categories

- 1501: Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair
- 1502: Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair + CABG Surgery
- 2038: Performing Vaginal Apical Suspension at the Time of Hysterectomy to Address Pelvic Organ Prolapse
- 2677: Preoperative Evaluation for Stress Urinary Incontinence Prior to Hysterectomy for Pelvic Organ Prolapse
- 2681: Perioperative Temperature Management
- 2683: Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery
- 2687: Hospital Visits after Hospital Outpatient Surgery

Surgery Phase 2 Measures Recommended with Reserve Status for Endorsement:

- 0116: Anti-Platelet Medication at Discharge

Surgery Phase 2 Measures Not Recommended

- 0360: Esophageal Resection Mortality Rate (IQI 8)

BACKGROUND

As part of NQF's ongoing work with performance measurement for patients undergoing surgery, this project sought to identify and endorse performance measures for accountability and quality improvement that address a number of surgical areas, including cardiac, thoracic, vascular, orthopedic, neurosurgery, urologic and general surgery. New performance measures were sought and maintenance reviews of a group of surgical measures endorsed prior to 2012 were conducted. All measures were evaluated against the most recent (2013) NQF measure evaluation criteria.

This project is the second cycle of measure evaluation by NQF's Surgery Standing Committee. It builds on the work of the previous surgery endorsement project, launched in 2013. Phase 2 sought to identify and endorse new measures that can be used to assess surgical conditions at various levels of analysis and settings of care, and review endorsed measures scheduled for maintenance. With funding from the Department of Health and Human Services (HHS), NQF collaborated with a multi-stakeholder committee to evaluate the measures and make recommendations for which measures should be granted initial or ongoing endorsement as consensus standards.

DRAFT REPORT

The Surgery draft report presents the results of the evaluation of 24 measures - four newly-submitted measures, one resubmitted measure, and nineteen previously-endorsed measures considered under the CDP. Twenty-two are recommended for endorsement (with one recommended for reserve status) as voluntary consensus standards suitable for accountability and quality improvement; one was not recommended and one was deferred. A decision on measure #0361 (Esophageal Resection Volume (IQI 1)) was deferred to provide time for the developer to develop a volume-mortality composite measure to replace measures #0360 and #0361, as requested by the Standing Committee. NQF expects that the resulting composite will be submitted for the next cycle of surgery measure review. In addition, the maintenance reviews of three measures (#0736: Survival Predictor for Abdominal Aortic Aneurysm (AAA)©, #0737: Survival Predictor for Esophagectomy Surgery©, and #0738: Survival Predictor for Pancreatic Resection Surgery©) were rescheduled prior to the Committee meeting.

	MAINTENANCE	NEW	RESUBMITTED	TOTAL
Rescheduled prior to committee meeting	3	-	-	3
Measures considered	19	4	1	24
Measures deferred	1	-	-	1
Measures recommended	16	4	1	21
Measures recommended with reserve status	1	-	-	1
Measures not recommended	1*	-	-	1

**This measure was not recommended based on reliability. A new composite measure is in development and will be submitted to a later project.*

COMMENTS AND THEIR DISPOSITION

NQF received seven comments from four organizations (including three member organizations) and individuals pertaining to the general draft report and to the measures under consideration. Pre-evaluation comments were reviewed and addressed by the Standing Committee during their March 19-20 in-person meeting, and therefore are not addressed in this memo.

A table of comments submitted during the comment period, with the responses to each comment and the actions taken by the Standing Committee and measure developers, is posted to the Surgery Phase 2 project page.

Summary of Comments Received and Responses

Post-draft comments addressed socio-demographic status adjustment, the potential need for harmonization, and additional measure-specific issues for the Standing Committee's consideration.

Adjustment for Socioeconomic Status and Other Demographic Factors (SDS)

Two commenters observed that measure #2687 (Hospital Visits After Outpatient Surgery) is being evaluated during a time when NQF is holding a trial period under which measures may be risk-adjusted for patients' socioeconomic status and other demographic factors (SDS). The commenters suggested that SDS adjustment for measure #2687 may be appropriate, and questioned why this had not been discussed or considered by the Standing Committee. As outlined below, both the developer and the Surgery Standing Committee conformed to NQF policy regarding inclusion of SDS factors in the risk-adjustment approach.

As noted in the table of comments, previous NQF policy prohibited the inclusion of sociodemographic status (SDS) factors in risk-adjustment approaches out of concern that doing so might conceal inequalities in care and result in lower standards of provider performance for certain subpopulations. In 2014, NQF convened a multi-stakeholder panel of experts in healthcare performance measurement and disparities to consider if, when, and how performance measures should be adjusted for SDS. After its deliberations, the Expert Panel recommended that NQF should allow inclusion of SDS factors in the risk-adjustment approach for performance measures when conceptual reasons and empirical evidence demonstrate it is appropriate. The NQF Board of Directors reviewed the Expert Panel's

recommendations and decided to make a time limited change to NQF's policy and evaluate its impact during the course of a two-year trial period. This trial period went into effect on April 15, 2015, meaning that projects with measure submission deadlines before that date fell under NQF's previous policy/guidance on SDS adjustment, while projects with measure submission deadlines after that date are subject to the trial period on SDS adjustment. The2015 Surgery project's measure submission deadline was January 14, 2015, prior to the start of NQF's SDS trial period. Therefore, the developer and the Surgery Standing Committee conformed to policy regarding inclusion of SDS factors in the risk-adjustment approach.

Harmonization

Commenters observed that a measure (#2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy) similar to measure #2687 (Hospital Visits after Hospital Outpatient Surgery) was recently endorsed by NQF's Readmissions Standing Committee, and questioned why the Surgery Standing Committee had not addressed harmonization of these two measures.

As noted in the comment table, both measures are new and in early stages of implementation. In the process of conducting a "dry run" of #2539, the developer has feedback from using entities as well as other learnings that suggest minor changes in data processing and attribution likely will be made to each of the measures. The Surgery Standing Committee agreed with the developer that the implementation and impact of these two new measures should be assessed independently before further consideration about how additional alignment might occur.

Measure Specific Comments

Individual comments specific to particular measures, along with developer responses and proposed Committee responses, can be found in the Comment Table.

NQF MEMBER VOTING RESULTS

All of the recommended measures were approved with 80 % approval or higher. Representatives of nine member organizations voted; no votes were received from Consumer, Public/Community Health Agency, and Supplier/Industry Councils. Results for each measure can be found in Appendix B. (Links are provided to the full measure summary evaluation tables.)

REMOVE ENDORSEMENT OF MEASURES

One measure previously endorsed by NQF has not been recommended for continued endorsement:

Measure	Description	Reason for removal of endorsement
0360 Esophageal Resection Mortality Rate (IQI 8)	Number of inpatient deaths per 100 discharges with a procedure for esophageal resection.	Measure was not recommended for continued endorsement.

Appendix A-Measure Evaluation Summary Tables

LEGEND: Y = Yes; N = No; H = High; M = Moderate; L = Low; I = Insufficient; NA=Not Applicable; Y=Yes; N=No

Measures Recommended

0115 Risk-Adjusted Surgical Re-exploration: Recommended

Submission | Specifications

Description: Percent of patients aged 18 years and older undergoing isolated CABG who require a re-intervention during the current hospitalization for mediastinal bleeding with or without tamponade, graft occlusion, valve dysfunction, or other cardiac reason

Numerator Statement: Number of patients undergoing isolated CABG who require a re-intervention during the current hospitalization for mediastinal bleeding with or without tamponade, graft occlusion, valve dysfunction, or other cardiac reason

Denominator Statement: All patients undergoing isolated CABG

Exclusions: N/A

Adjustment/Stratification: Statistical risk model

Level of Analysis: Clinician: Group/Practice, Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Electronic Clinical Data: Registry

Measure Steward: The Society of Thoracic Surgeons

STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence: 1b. Performance Gap)

1a. Evidence: **Y-19; N-1**; 1b. Performance Gap: **H-12; M-9; L-0; I-0**

Rationale:

- The developer reported that while 90 percent of hospitals that perform cardiac surgery are included in the STS database, the number is dynamic with hospitals leaving and others joining as cardiac surgery programs are closed and others opened.
- The developer reported that within any given hospital performing cardiac surgery, there could be variability in the number of participating physician groups.
- The developer presented information that links surgical re-exploration to longer ICU stays and to the potential to affect long-term survival.
- The committee noted that information provided by the developer shows participant-specific rates of re-exploration at 1.14 – 9.2 percent for one 12 month time period and 1.09 – 6.36 percent in a second time period ending in June 2014.
- Overall rates of re-exploration have declined over the period of time the measure has been monitored.
- The committee agreed the measure meets the criterion of importance to measure and report.

0115 Risk-Adjusted Surgical Re-exploration: Recommended

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-15; M-6; L-0; I-0** 2b. Validity: **H-16; M-4; L-0; I-0**

Rationale:

- The measure is precisely specified.
- To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities.
- Data submitted by the developer show that in the 10 percent of STS Adult Cardiac Surgery Database participants subjected to an audit, there was 95.73 percent agreement between information submitted to the registry by participants and information re-abstracted by independent auditors.
- To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance.
- Testing results provided by the developer showed that registry participants in low, middle and high observed rates of post-operative re-exploration rates in one time period (July 2012 – June 2013) had correspondingly low, mid, and high rates of re-exploration in the following period (July 2013 – June 2014).
- The measure is risk adjusted and the risk factors are described in detail.
- There are no exclusions for the measure.
- The Committee determined that the measure has been tested at the data element and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.

3. Feasibility: H-15; M-6; L-1; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)

Rationale:

- The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care.
- The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications.
- The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed.
- The committee was satisfied with the measure's feasibility.

4. Usability and Use: H-18; M-4; L-0; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

Rationale:

- The developer reports that the measure is publicly reported through the STS public reporting program and through Consumer Reports. It is also used for quality improvement including with

0115 Risk-Adjusted Surgical Re-exploration: Recommended

benchmarking.

- Overall rates of re-operation have been steadily declining with a reported rate in the most recent period reported at 2.3 percent.
- The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients.
- The Committee was satisfied with the measure's usability.

5. Related and Competing Measures

- The related measures are component measures of the NQF-endorsed CABG composite.

Standing Committee Recommendation for Endorsement: Y-22; N-0

6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day commenting period from May 22, 2015 to June 5, 2015)

- There were no comments received for this measure.

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

0118 Anti-lipid Treatment at Discharge: Recommended

Submission | Specifications

Description: Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on a lipid lowering statin

Numerator Statement: Number of patients undergoing isolated CABG who were discharged on a lipid lowering statin

Denominator Statement: All patients undergoing isolated CABG

Exclusions: Cases are removed from the denominator if there was an in-hospital mortality or if discharge anti-lipid treatment was contraindicated.

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Clinician: Group/Practice, Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Process

Data Source: Electronic Clinical Data: Registry

Measure Steward: The Society of Thoracic Surgeons

STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence: 1b. Performance Gap)

1a. Evidence: **H-6; M-9; L-3; I-0; IE-1**; 1b. Performance Gap: **H-2; M-15; L-4; I-0**

Rationale:

- The Committee discussed the extrapolation of evidence from guidelines for cardiovascular

0118 Anti-lipid Treatment at Discharge: Recommended

disease to apply to this surgical measure in terms of applicability given that the measure is isolated to patients undergoing CABG, therefore with cardiovascular disease.

- The Committee discussed the ACC/AHA guidelines related to statin therapy as a secondary prevention specifically related to age at which it should be started (21) in the context of the age specified for this measure. Additional benefit of statin therapy discussed were reduction in graft closure and reduction issues related to systemic inflammatory effects of cardiopulmonary bypass.
- Overall the Committee accepted the rationale for application of the evidence to providing statin therapy to patients ages 18 – 21 undergoing isolated CABG and noted that the age specification is similar across a number of measures submitted by the developer.
- At the next maintenance cycle, the Committee asked to see additional evidence for the age specification as well as information regarding the number of patients ages 18 – 21 undergoing isolated CABG.
- The developer reports level of performance in the 12-month period ending June 2014 at 95.5 percent with a range of 89 to 99 percent.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-15; M-6; L-0; I-0** 2b. Validity: **H-13; M-9; L-0; I-0**

Rationale:

- The measure is precisely specified.
- Exclusions are appropriate and the ability to collect the data consistently has been demonstrated.
- To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities.
- Data submitted by the developer show that in the 10 percent of STS Adult Cardiac Surgery Database participants subjected to an audit, there was 95.73 percent agreement between information submitted to the registry by participants and information re-abstracted by independent auditors.
- To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance.
- Testing results provided by the developer showed that registry participants in low, middle and high observed rates of use of lipid-lowering medication in one time period (July 2012 – June 2013) had correspondingly low, mid, and high rates of use of the medication in the following period (July 2013 – June 2014).
- The measure is not risk adjusted.
- The Committee determined that the measure has been tested at the data element and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.

0118 Anti-lipid Treatment at Discharge: Recommended

3. Feasibility: H-15; M-6; L-1; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care.
- The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications.
- The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed.
- The committee was satisfied with the measure's feasibility.

4. Usability and Use: H-18; M-4; L-0; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

Rationale:

- The developer reports that the measure is publicly reported through the STS public reporting program and through Consumer Reports. It is also used for quality improvement including with benchmarking.
- Overall rates of statin use have been steadily increasing with a reported rate in the most recent period reported at 95.5 percent.
- The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients.
- The Committee was satisfied with the measure's usability.

5. Related and Competing Measures

- Twelve related NQF-endorsed STS measures are listed, of which 10 are components of the STS CABG Composite Score that is also listed. It is noted that all are harmonized.

Standing Committee Recommendation for Endorsement: Y-21; N-1

6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day commenting period from May 22, 2015 to June 5, 2015)

- There were no comments received for this measure.

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

0120 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR): Recommended

Submission | Specifications

Description: Percent of patients aged 18 years and older undergoing Aortic Valve Replacement (AVR) who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure

Numerator Statement: Number of patients aged 18 years and older undergoing AVR who die,

0120 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR): Recommended

including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure

Denominator Statement: All patients undergoing isolated AVR surgery

Exclusions: N/A

Adjustment/Stratification: Statistical risk model

Level of Analysis: Clinician: Group/Practice, Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Electronic Clinical Data: Registry

Measure Steward: The Society of Thoracic Surgeons

STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence: 1b. Performance Gap)

1a. Evidence: **Y-19; N-1**; 1b. Performance Gap: **H-8; M-14; L-0; I-0**

Rationale:

- The Committee noted that a lengthy discussion of evidence related to outcome measures for cardiac surgery, also relevant to this measure, had been discussed during the review of measure 0115, which had preceded this one. Accordingly, the Committee moved to immediate vote on this criterion.
- Mortality rates for the 12-month period ending in June 2014 were 2.2 percent with a range of 0.5 to 8.5 percent.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: H-15; M-6; L-0; I-0; 2b. Validity: **H-16; M-5; L-0; I-0**

Rationale:

- The measure is precisely specified.
- To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities.
- Data submitted by the developer show that in the 10 percent of STS Adult Cardiac Surgery Database participants subjected to an audit, there was 95.73 percent agreement between information submitted to the registry by participants and information re-abstracted by independent auditors.
- To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of

0120 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR): Recommended
measure scores over time may indicate that the measure is capturing an accurate indication of provider performance. • Testing results provided by the developer showed that registry participants in low, middle and high observed rates of AVR operative mortality in one time period (July 2008 – June 2011) had correspondingly low, mid, and high rates of mortality in the following period (July 2011 – June 2014). • The measure is risk adjusted and both the risk model and risk factors are described in detail. • There are no exclusions for the measure. • The Committee determined that the measure has been tested at the data element and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.
3. Feasibility: H-15; M-6; L-1; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Data collection strategy can be implemented)* Rationale: • The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care. • The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications. • The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed. • The committee was satisfied with the measure's feasibility.
4. Usability and Use: H-18; M-4; L-0; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement) 4c. Susceptibility to inaccuracies/ unintended consequences identified* Rationale: • The developer reports that the measure is publicly reported through the STS public reporting program and through Consumer Reports. It is also used for quality improvement including with benchmarking. • Overall rates of AVR operative mortality have been steadily declining with a reported rate in the most recent period reported at 2.2 percent. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • The related measures are NQF-endorsed measures developed by STS. The developer notes they are harmonized.
Standing Committee Recommendation for Endorsement: Y-21; N-1
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day commenting period from May 22, 2015 to June 5, 2015) • There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X

0120 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR): Recommended
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0121 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement: Recommended
Submission | Specifications
Description: Percent of patients aged 18 years and older undergoing MV replacement who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Numerator Statement**: Number of patients aged 18 years and older undergoing MV replacement who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Denominator Statement**: All patients undergoing isolated MV replacement surgery **Exclusions**: N/A **Adjustment/Stratification**: Statistical risk model **Level of Analysis**: Clinician: Group/Practice, Facility **Setting of Care**: Clinician: Group/Practice, Facility **Type of Measure**: Outcome **Data Source**: Electronic Clinical Data: Registry **Measure Steward**: The Society of Thoracic Surgeons
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015] **1. Importance to Measure and Report: The measure meets the Importance criteria** *(1a. Evidence: 1b. Performance Gap)* 1a. Evidence: **Y-20; N-0**; 1b. Performance Gap: **H-10; M-11; L-0; I-0** Rationale: • The Committee noted that a lengthy discussion of evidence related to outcome measures for cardiac surgery, also relevant to this measure, had been discussed during the review of measure 0115, which had preceded this one. Accordingly, the Committee moved to immediate vote on this criterion. • Mortality rates for two time periods were noted: 1) the 48 month period ending June 2011 with an average rate of 5.85 percent and a range of 2.7 to 12.73 percent and 2) the 36 month period ending in June 2014 with an average of 5.26 percent and a range of 5.26 to 11.56 percent. The Committee also noted a performance gap related to gender. • The Committee agreed that the measure meets the criterion of importance to measure and report.
2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

0121 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement: Recommended

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

2a. Reliability: **H-15; M-6; L-0; I-0**; 2b. Validity: H-13; M-7; L-0; I-0

Rationale:

- The measure is precisely specified.
- To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities.
- Data submitted by the developer show that in the 10 percent of STS Adult Cardiac Surgery Database participants subjected to an audit, there was 95.73 percent agreement between information submitted to the registry by participants and information re-abstracted by independent auditors.
- To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance.
- Testing results provided by the developer showed that registry participants in low, middle and high observed rates of MV operative mortality in one time period (July 2008 – June 2011) had correspondingly low, mid, and high rates of mortality in the following period (July 2011 – June 2014).
- The measure is risk adjusted and both the risk model and risk factors are described in detail.
- There are no exclusions for the measure.
- The Committee determined that the measure has been tested at the data element and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.

3. Feasibility: H-15; M-6; L-1; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Data collection strategy can be implemented)

Rationale:

- The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care.
- The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications.
- The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed.
- The committee was satisfied with the measure's feasibility.

4. Usability and Use: H-18; M-4; L-0; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement) 4c.Susceptibility to inaccuracies/ unintended consequences identified

Rationale:

- The developer reports that the measure is used for quality improvement including with

0121 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement: Recommended
benchmarking and will be publicly reported through the STS public reporting program and through Consumer Reports in 2016. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • The related measures identified are NQF-endorsed measures developed by STS. The developer notes they are harmonized.
Standing Committee Recommendation for Endorsement: Y-22; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day commenting period from May 22, 2015 to June 5, 2015) • There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0122 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement + CABG Surgery: Recommended
Submission | Specifications
Description: Percent of patients aged 18 years and older undergoing combined MV Replacement and CABG who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Numerator Statement**: Number of patients aged 18 years and older undergoing combined MV Replacement and CABG who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Denominator Statement**: All patients undergoing combined MV Replacement + CABG **Exclusions**: N/A **Adjustment/Stratification**: Statistical risk model **Level of Analysis**: Clinician: Group/Practice, Facility **Setting of Care**: Hospital/Acute Care Facility **Type of Measure**: Outcome **Data Source**: Electronic Clinical Data: Registry **Measure Steward**: The Society of Thoracic Surgeons
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015] **1. Importance to Measure and Report: The measure meets the Importance criteria** *(1a. Evidence: 1b. Performance Gap)* 1a. Evidence: **Y-19; N-1**; 1b. Performance Gap: **H-9; M-12; L-0; I-0**

0122 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement + CABG Surgery: Recommended

Rationale:

- The Committee reiterated that a lengthy discussion of evidence related to outcome measures for cardiac surgery had been discussed during the review of measure 0115, which had preceded this one. Accordingly, the Committee moved to immediate vote on this criterion.
- Mortality rates for two time periods were noted. In the earlier time period, the average rate was 9.29 percent with a range of 6.87 to 12.8 percent. In the more recent time period, the average rate was 9.36 percent with a range from 5.96 to 13.25 percent. STS participant-specific mortality rates for the measure demonstrate variation ranging from 2.3 percent in the highest performing hospitals/groups to 20.6 percent in lowest performing hospitals/groups for a 12 month period ending in June 2014. The developer noted that, for this larger surgery with higher risk, rates higher than that of the mortality measures discussed earlier was not surprising. Incremental improvement across gender was noted with greater improvement among males than females.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-15; M-6; L-0; I-0**; 2b. Validity: **H-12; M-7; L-0; I-0**

Rationale:

- The measure is precisely specified.
- To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities.
- Data submitted by the developer show that in the 10 percent of STS Adult Cardiac Surgery Database participants subjected to an audit, there was 95.73 percent agreement between information submitted to the registry by participants and information re-abstracted by independent auditors.
- To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance.
- Testing results provided by the developer showed that registry participants in low observed rates of MV replacement and CABG surgery mortality in one time period (July 2008 – June 2011) had correspondingly low rates of mortality in the following period (July 2011 – June 2014) while rates of those in the middle and high groups were reversed in the later period.
- The measure is risk adjusted and both the risk model and risk factors are described in detail.
- There are no exclusions for the measure.
- The Committee determined that the measure has been tested at the data element and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.

3. Feasibility: H-15; M-6; L-1; I-0

0122 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement + CABG Surgery: Recommended
(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Data collection strategy can be implemented) Rationale: • The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care. • The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications. • The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed. • The committee was satisfied with the measure's feasibility.
4. Usability and Use: H-18; M-4; L-0; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability, 4b. Quality Improvement), 4c. Susceptibility to inaccuracies/ unintended consequences identified* Rationale: • The developer reports that the measure is used for quality improvement including with benchmarking and will be publicly reported as part of the STS MV surgery + CABG composite, developed in 2014, through the STS public reporting program and Consumer Reports in 2016. • Overall rates of operative mortality for this measure have been steadily declining with a reported rate in the most recent period of 2.2 percent. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. **Related and Competing Measures** • The nine measures identified as related are NQF-endorsed measures developed by STS. The developer notes they are harmonized.
Standing Committee Recommendation for Endorsement: Y-19; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day commenting period from May 22, 2015 to June 5, 2015) • There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0123 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery: Recommended
Submission | Specifications
Description: Percent of patients aged 18 years and older undergoing combined AVR and CABG who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure

0123 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery: Recommended

Numerator Statement: Number of patients aged 18 years and older undergoing combined AVR and CABG who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.

Denominator Statement: All patients undergoing combined AVR + CABG

Exclusions: N/A

Adjustment/Stratification: Statistical Risk Model

Level of Analysis: Clinician: Group/Practice, Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Electronic Clinical Data: Registry

Measure Steward: The Society of Thoracic Surgeons

STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence: 1b. Performance Gap)

1a. Evidence: **Y-20; N-1**; 1b. Performance Gap: **H-10; M-10; L-1; I-0**

Rationale:

- The Committee reiterated that a lengthy discussion of evidence related to outcome measures for cardiac surgery had been discussed during the review of measure 0115, which had preceded this one. Accordingly, the Committee moved to immediate vote on this criterion.
- Mortality rates for two time periods, July 2008 – June 2011 and July 2011 – June 2014 were noted. In the earlier time period, the average rate was 4.81 percent with a range of 2.28 to 9.56 percent. In the more recent time period, the average rate was 4.19 percent with a range from 1.68 to 8.51 percent. Participant-specific mortality rates for the measure demonstrate variation ranging from 1.2 percent in the highest performing hospitals/groups to 10.7 percent in lowest performing hospitals/groups for a 12 month period ending in June 2014.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-15; M-6; L-0; I-0**; 2b. Validity: **H-18; M-4; L-0; I-0**

Rationale:

- The measure is precisely specified.
- To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities.
- Data submitted by the developer show that in the 10 percent of STS Adult Cardiac Surgery Database participants subjected to an audit, there was 95.73 percent agreement between information submitted to the registry by participants and information re-abstracted by independent auditors.

0123 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery: Recommended
• To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance. • Testing results provided by the developer showed that registry participants in low, middle and high observed rates of AVR plus CABG surgery mortality in one time period (July 2008 – June 2011) had correspondingly low, mid, and high rates of mortality in the following period (July 2011 – June 2014). • The measure is risk adjusted and both the risk model and risk factors are described in detail. • There are no exclusions for the measure. • The Committee determined that the measure has been tested at the data element and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.
3. Feasibility: H-15; M-6; L-1; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Data collection strategy can be implemented)* Rationale: • The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care. • The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications. • The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed. • The committee was satisfied with the measure's feasibility.
4. Usability and Use: H-18; M-4; L-0; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability, 4b. Quality Improvement), 4c.Susceptibility to inaccuracies/ unintended consequences identified* Rationale: • The developer reports that the measure is publicly reported through the STS public reporting program and through Consumer Reports. It is also used for quality improvement including with benchmarking. • Overall mortality rates have been steadily declining with a reported rate in the most recent period reported at 2.2 percent. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. R**elated and Competing M**easures • Nine related measures are identified. All are STS developed measures. The developer notes that all are harmonized.
Standing Committee Recommendation for Endorsement: Y-22; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day commenting

0123 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery: Recommended
period from May 22, 2015 to June 5, 2015) • There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0130 Risk-Adjusted Deep Sternal Wound Infection Rate: Recommended
Submission | Specifications
Description: Percent of patients aged 18 years and older undergoing isolated CABG who develop mediastinitis or deep sternal wound infection within 30 days postoperatively **Numerator Statement**: Number of patients aged 18 years and older undergoing isolated CABG who develop mediastinitis or deep sternal wound infection within 30 days postoperatively **Denominator Statement**: All patients undergoing isolated CABG **Exclusions**: N/A **Adjustment/Stratification**: No risk adjustment or risk stratification **Level of Analysis**: Facility, Clinician: Group/Practice **Setting of Care**: Hospital/Acute Care Facility **Type of Measure**: Outcome **Data Source**: Electronic Clinical Data: Registry **Measure Steward**: The Society of Thoracic Surgeons
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015] **1. Importance to Measure and Report: The measure meets the Importance criteria** *(1a. Evidence: 1b. Performance Gap)* 1a. Evidence: **Y-21; N-0**; 1b. Performance Gap: **H-8; M-12; L-1; I-0** Rationale: • The Committee reiterated that a lengthy discussion of evidence related to outcome measures for cardiac surgery had been discussed during the review of measure 0115, which had preceded this one. Accordingly, the Committee moved to immediate vote on this criterion. • Mortality rates for two time periods, July 2012 – June 2013 and July 2013 – June 2014 were noted. In the earlier time period, the average rate was 0.36 percent with a range of 0.14to 2.94 percent. In the more recent time period, the average rate was 0.28 percent with a range from 0.15 to 1.32 percent. STS participant-specific infection rates for the measure demonstrate variation ranging from 0 percent in the highest performing hospitals/groups to 1.1 percent in lowest performing hospitals/groups for a 12 month period ending in June 2014. • The Committee noted that while the rate of occurrence of post-operative deep sternal wound infection/mediastinitis is low, it is an undesirable outcome that carries significant burden in terms of patient impact as well as cost and warrants continued reporting. • The Committee noted that it may not be discriminatory as a quality improvement measure but is very important for public accountability. • The Committee agreed that the measure meets the criterion of importance to measure and

report.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-15; M-6; L-0; I-0**; 2b. Validity: **H-14; M-7; L-0; I-0**

Rationale:

- The measure is precisely specified.
- To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities.
- Data submitted by the developer show that in the 10 percent of STS Adult Cardiac Surgery Database participants subjected to an audit, there was 95.73 percent agreement between information submitted to the registry by participants and information re-abstracted by independent auditors.
- To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance.
- Testing results provided by the developer showed that registry participants in low, middle and high observed rates of deep sternal wound infection/mediastinitis post-operatively in one time period (July 2012 – June 2013) had correspondingly low, mid, and high rates of mediastinitis in the following period (July 2013 – June 2014).
- The measure is risk adjusted and the risk model and risk factors are described in detail.
- There are no exclusions for the measure.
- The Committee determined that the measure has been tested at the data element and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.

3. Feasibility: H-15; M-6; L-1; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Data collection strategy can be implemented)

Rationale:

- The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care.
- The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications.
- The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed.
- The committee was satisfied with the measure's feasibility.

4. Usability and Use: H-18; M-4; L-0; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement), 4c.Susceptibility to inaccuracies/

0130 Risk-Adjusted Deep Sternal Wound Infection Rate: Recommended

unintended consequences identified

Rationale:

- The developer reports that the measure is publicly reported through the STS public reporting program and through Consumer Reports. It is also used for quality improvement including with benchmarking.
- Overall rates of post-operative mediastinitis have been steadily declining with a reported rate in the most recent period reported at 0.25 percent.
- The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients.
- The Committee was satisfied with the measure's usability.

5. Related and Competing Measures

The related measures identified are NQF endorsed measures developed by STS, 10 of which are component measures of the CABG composite. The developer indicates they are harmonized.

Standing Committee Recommendation for Endorsement: Y-22; N-0

6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day commenting period from May 22, 2015 to June 5, 2015)

- There were no comments received for this measure.

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

0236 Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery: Recommended

Submission | Specifications

Description: Percentage of isolated Coronary Artery Bypass Graft (CABG) surgeries for patients aged 18 years and older who received a beta-blocker within 24 hours prior to surgical incision

Numerator Statement: Patients who received a beta-blocker within 24 hours prior to surgical incision of isolated CABG surgeries

Denominator Statement: Isolated CABG surgeries for patients aged 18 years and older

Exclusions: Medical Reason - Eligible professional must document specific reason(s) for not administering beta-blockers.

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Clinician: Group/Practice, Clinician: Individual

Setting of Care: Ambulatory Care: Clinician Office/Clinic

Type of Measure: Process

Data Source: Administrative claims, Paper Medical Records, Electronic Clinical Data: Registry

Measure Steward: Centers for Medicare & Medicaid Services

STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

0236 Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery: Recommended

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence 1b. Performance Gap)

1a. Evidence: **H-6; M-12; L-3; I-1**; 1b. Performance Gap: **H-5; M-10; L-7; I-0**

Rationale:

- Evidence presented by the developer included 2011 Clinical Guidelines on Myocardial Revascularization from the American College of Cardiology Foundation and the American Heart Association and the 2014 ESC/EACTS Guidelines, which support the use of beta blockers and the use of them administered at least 24 hours before CABG to all patients without contraindications to reduce the incidence of postoperative atrial fibrillation (recommendations range from 1B-2B-1A). The developer reports that postoperative atrial fibrillation (POAF) is a common complication following cardiac surgery, occurring in 25-40 percent of patients that can be reached with beta blockers.
- The Committee discussed how the literature on use of beta-blockers has evolved and if this practice really improves morbidity and mortality. Overall mortality risk is now one percent or less but it is unclear to what extent the beta-blocker plays in this low rate. While some more recent studies did not show a statistically significant difference, the Committee agreed that the measure reflects the existing guidelines and is still useful to measure.
- The committee noted that patients who have beta blockers preoperatively and develop post-operative atrial fibrillation have a lower rate that is more easily controlled.
- The Committee noted that average compliance in 2012 was 95.5 percent but raised concerns about whether the measure has topped out among those who are reporting it (31 percent of eligible providers).
- The Committee agreed that the measure meets the criterion of importance to measure and report.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-5; M-15; L-1; I-0**; 2b. Validity: **H-2; M-14; L-6; I-0**

Rationale:

- The measure is specified for analysis at the individual clinician and group/practice levels, and is intended for use in ambulatory care (clinician office/clinic) settings. The measure is not risk-adjusted and patients may be excluded from the denominator if a beta blocker was not administered due to documented medical reasons (e.g., not indicated, contraindicated, other medical reason).
- The Committee agreed that reliability of the measure was demonstrated, with reliability scores of 0.85 with a 1.0 max from the registry reporting and 0.99 from claims-based reporting.
- To test reliability and validity of the data elements, the developers calculated the rate of agreement between the data as assessed by independent reviewers and the data as reported in claims (i.e., inter-rater reliability testing). The developers' report that documentation and reporting practices related to this clinical action (administration of a beta blocker 24 hours prior to CABG surgery) created some challenges for their validity assessment. The initial analysis, focused on records from physicians' outpatient practices, resulted in an inter-rater agreement rate of 64.2 percent. Further analysis revealed that inter-rater agreement was significantly higher when hospital medical record documentation was present (when both a Medication Administration Report (MAR) and Operating Room (OR) report was available, the agreement

0236 Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery: Recommended
rate increased to 96.9 percent). • The Committee agreed that the measure is valid and reliable based on the reporting cohort but noted the low reporting rate and lack of clear understanding of why only 30 percent of eligible providers reported the measure. • The Committee requests that, as part of providing any new evidence at the next maintenance cycle, that the developer include discussion of the place of amiodarone in the measure.
3. Feasibility: H-2; M-16; L-4; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Data collection strategy can be implemented)* Rationale: • The measure is calculated based on data from administrative claims or clinical registries, using CPT® II codes to identify the numerator (patients who received pre-operative beta blockers) and denominator (patients undergoing CABG procedures) populations. • Some concerns from the Committee were raised about challenges related to involving specialists in the PQRS process. • The Committee was generally satisfied with the feasibility of the measure.
4. Usability and Use: H-2; M-16; L-4; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability, 4b. Quality Improvement), 4c. Susceptibility to inaccuracies/ unintended consequences identified* Rationale: • The developer shared that the measure was first implemented in the PQRS program in 2007 in an effort for specialists to report measures that address relevant clinical strategy. Since then, the measure has been expanded to include use by anesthesiologists. • The measure is publicly reported. • Average performance on the measured has improved from 91 percent in 2009 to 95.9 percent in 2012 while eligible providers reporting have changed by just over 1 percent. • The Committee was generally satisfied with the use and usability of the measure.
5. Related and Competing Measures • This measure is similar to 0127 Preoperative Beta Blockade, percent of patients aged 18 years and older undergoing isolated CABG who received beta blockers within 24 hours preceding surgery. • However, with different care setting, level of analysis and data source, it is appropriate to have both measures. The Committee has asked that the developers of the two measures discuss whether there is opportunity for harmonization of the measures.
Standing Committee Recommendation for Endorsement: Y-17; N-5
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day commenting period from May 22, 2015 to June 5, 2015) • There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0354 Hip Fracture Mortality Rate (IQI 9): Recommended

Submission | Specifications

Description: In-hospital deaths per 1,000 hospital discharges with hip fracture as a principal diagnosis for patients ages 65 years and older. Excludes periprosthetic fracture discharges, obstetric discharges, and transfers to another hospital.

[NOTE: The software provides the rate per hospital discharge. However, common practice reports the measure as per 1,000 discharges. The user must multiply the rate obtained from the software by 1,000 to report in-hospital deaths per 1,000 hospital discharges.]

Numerator Statement: Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.

Denominator Statement: Discharges, for patients ages 65 years and older, with a principal ICD-9-CM diagnosis code for hip fracture.

Exclusions: Exclude cases:

- with any-listed ICD-9-CM diagnosis codes for periprosthetic fracture
- transferring to another short-term hospital (DISP=2)
- MDC 14 (pregnancy, childbirth, and puerperium)
- with missing discharge disposition (DISP=missing), gender (SEX= missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing)

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Administrative claims

Measure Steward: Agency for Healthcare Research and Quality

STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence: 1b. Performance Gap)

1a. Evidence: **Y-22; N-0**; 1b. Performance Gap: **H-16; M-4; L-1; I-0**

Rationale:

- As a rationale for measuring this outcome, the developer cites literature identifying time-to-surgery as a significant predictor of in-hospital mortality, noting that hospital structures and processes that improve timely treatment of hip fracture repair might improve hip fracture mortality rates, particularly for the elderly, who often have multiple comorbidities and pre-fracture functional impairments.
- During the Committee's evaluation, the developer also noted that the evidence suggests thrombosis can be reduced in hip-fracture patients using appropriate methods of prophylaxis, and that cardiac evaluation and risk assessment may impact mortality rates as well.
- Committee members noted that measuring and benchmarking hip fracture mortality rates helps institutions to recognize areas for improvement and then work to optimize their processes accordingly.
- The Committee agreed that there is a gap in performance warranting measurement in this area.

0354 Hip Fracture Mortality Rate (IQI 9): Recommended

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-9; M-13; L-1; I-0**; 2b. Validity: **H-2; M-15; L-5; I-0**

Rationale:

- The developer informed the Committee that this measure is based on administrative data that are collected by state health data organizations and compiled by the Agency for Healthcare Research and Quality (AHRQ), made available to researchers and others.
- The developer noted that the measure is focused on the inpatient setting because many users of AHRQ's Quality Indicators only have access to inpatient data; data on post-discharge follow-up of patients is limited because of constraints on hospitals' ability to collect that information.
- Committee members noted that accurately identifying hip fracture patients can be difficult due to challenges in assessing the level of a fracture.
- Committee members also noted that the measure includes open fractures, which imply high-energy (i.e., trauma-induced) fractures, which may not be the proper intent of a measure applying to patients 65 and older.
- The developer pointed out that whether a fracture is open or closed is a factor included in the risk-adjustment model.
- To demonstrate reliability, the developer provided results of a signal-to-noise analysis of the measure score, which tests reliability by estimating the extent to which variation in scoring is caused by real differences in performance ('signal') as opposed to measurement error ('noise').
- Some Committee members suggested that the overall reliability score of 0.43 reported by the developer appeared low compared to some other publicly-reported measures, raising concerns about the measure's ability to distinguish meaningful performance differences among hospitals.
- The developer acknowledged that the reliability testing results were not optimal, but noted that this is true of many endorsed measures, and characteristic of the type of reliability testing used (i.e., a signal-to-noise analysis). In addition, the developer explained AHRQ's method of 'smoothing' performance rates for smaller-volume hospitals by shrinking them towards the average performance rate, effectively adjusting the score for reliability.
- Committee members generally agreed that reliability testing results were adequate, while acknowledging that reliability was lower for smaller hospitals.
- Committee members also observed that the measure has been endorsed and in use since 2008, and it appears to have driven improvement (rates have gone down over time); moreover, we have not seen a substantial increase in work-arounds or 'gaming' of the measure in practice, which suggests a certain level of reliability and validity.
- To demonstrate validity of the measure score, the developers facilitated a systematic assessment of face validity by an expert panel, utilizing a modified Delphi process to conduct the assessment.
- While acknowledging this measure's potential utility for internal quality improvement and surveillance of national trends, some Committee members questioned whether the measure provides performance results that are valid for comparative purposes across hospitals, raising concerns about the adequacy of the measure's risk adjustment and the accuracy of administrative claims data.
- Committee members also noted that the measure is not focused solely on surgery patients, also including hip-fracture patients who are managed medically. This was a cause for concern

0354 Hip Fracture Mortality Rate (IQI 9): Recommended

for some Committee members, who suggested that mortality may be a more valid indicator of quality for patients who have chosen to have an operation than for patients who do not undergo surgery, since patients who decline surgery may have other treatment goals (potentially including comfort/palliative care).

- There was also some concern that hospitals may 'game' the measure by transferring patients at higher risk for mortality into hospice in order to improve the hospital's rate.
- The developer noted that the potential for gaming underpinned their decision to include patients whose hip fractures are treated medically, so that providers would not be incentivized to discourage surgery for higher-risk patients, adding that there has been no significant change in trends with regard to length of hospital stay or discharge distribution over the most recent period of observation, suggesting that such unintended consequences are probably not an issue.
- Other Committee members stressed the need to ensure that the perfect is not the enemy of the good, suggesting that despite its flaws, the measure is incentivizing providers to move in the right direction.

3. Feasibility: H-17; M-6; L-0; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Data collection strategy can be implemented)

Rationale:

- Committee members noted that the number of hospitals reporting data has dropped substantially in recent years.
- The developer explained that this decrease was due to a change in hospital eligibility criteria.
- The Committee observed that the measure is based on routinely collected administrative data, and was satisfied with the measure's feasibility.

4. Usability and Use: H-5; M-16; L-1; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability; 4b. Quality Improvement) and 4c.Susceptibility to inaccuracies/ unintended consequences identified)

Rationale:

- The developer notes that the AHRQ Quality Indicators are used by state health departments, regional coalitions, researchers, and others for a variety of purposes.
- Committee members asked if there was any indication that consumers are using this measure to choose between providers.
- The developer noted that the measure is not used in the CMS hospital quality reporting program, and is therefore only available if a state health data agency has chosen to report it or if hospitals themselves have chosen, in the interest of transparency, to report it publicly.
- It was also noted by the Committee that hip fractures are typically emergent situations that require immediate care, so there may be little opportunity for consumer selection based on reported performance rates.

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 17, 2015 – May 18, 2015 (Additional 15-day commenting period from May 22, 2015 to June 5, 2015)

- There were no comments received for this measure.

0354 Hip Fracture Mortality Rate (IQI 9): Recommended
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0465 Perioperative Anti-Platelet Therapy for Patients Undergoing Carotid Endarterectomy: Recommended
Submission | Specifications
Description: Percentage of patients undergoing carotid endarterectomy (CEA) who are taking an anti-platelet agent (aspirin or clopidogrel or equivilant such as aggrenox/tiglacor etc) within 48 hours prior to surgery and are prescribed this medication at hospital discharge following surgery **Numerator Statement**: Patients over age 18 undergoing carotid endarterectomy who received anti-platelet agents such as aspirin or aspirin-like agents, or P2y12 antagonists within 48 hours prior to the initiation of surgery AND are prescribed this medication at hospital discharge following surgery. **Denominator Statement**: Patients over age 18 undergoing carotid endarterectomy. **Exclusions**: Patients with known intolerance to anti-platlet agents such as aspirin or aspirin-like agents, or P2y12 antagonists, or those on heparin or other intravenous anti-coagulants; patients with active bleeding or undergoing urgent or emergent operations or endarterectomy combined with cardiac surgery. Patients with known intolerance to anti-platlet agents such as aspirin or aspirin-like agents, or P2y12 antagonists, or those on or other intravenous anti-coagulants; patients with active bleeding or undergoing urgent or emergent operations or endarterectomy combined with cardiac surgery. **Adjustment/Stratification**: No risk adjustment or risk stratification **Level of Analysis**: Facility, Clinician: Group/Practice, Clinician: Individual, Integrated Delivery System **Setting of Care**: Ambulatory Care: Clinician Office/Clinic, Hospital/Acute Care Facility **Type of Measure**: Process **Data Source**: Electronic Clinical Data: Registry **Measure Steward**: Society for Vascular Surgery
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015] **1. Importance to Measure and Report: The measure meets the Importance criteria** *(1a. Evidence, 1b. Performance Gap)* 1a. Evidence: **H-1; M-17; L-3; I-0**; 1b. Performance Gap: **H-9; M-14; L-1; I-0** Rationale: • Evidence presented by the developer included a 2003 Cochrane systematic review, results from a randomized controlled trial published in Lancet in 1999, and a 2014 article in the Journal of Vascular Surgery. Findings from the Cochrane review (not graded) indicated a protective effect of anti-platelet use for both stroke occurrence and stroke mortality (although the effect for mortality was not statistically significant). Cochrane reviewers noted that use of anti-platelet medication may increase bleeding risk, but due to insufficient data, they were unable to quantify the effect and concluded that anti-platelet medication should not be withheld from patients undergoing carotid endarterectomy. Findings from the 2014 article were that preoperative anti-platelet and statin use was associated with reduction in 30-day mortality (although results were not statistically signification) and that anti-platelet and statin prescription

at discharge conferred an additive effect that was associated with increased 5-year mortality.

- The Committee discussed how the supporting literature arrives at different conclusions but in aggregate agreed that the evidence supports use of these agents to reduce complications and is widely believed to work among vascular surgeons.
- Data submitted by the developer indicates that overall performance on this measure by the Vascular Quality Initiative (VQI) registry participants is 86 percent. Developers also note that "> 20 percent did not use perioperative anti-platelet in 80 percent of patients, and 50 percent did not achieve 90 percent". The Committee generally agreed that there is opportunity for improvement.
- The Committee asked the developer to provide the percentage of vascular surgeons and the percentage of vascular operations that are being performed in the United States that are part of this database.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-19; M-4; L-0**; I-0; 2b. Validity: **H-13; M-9; L-0; I-0**

Rationale:

- The data is collected by centers participating in the Vascular Quality Initiative (VQI) database. Over 335 centers now participate in the database. To demonstrate the accuracy of the data included in the VQI registry, a comparison was made between the registry data and data obtained by a nurse abstractor who conducted a review of medical records. Results of the chart abstraction comparison yielded kappa statistics of 0.94 and above, depending on the data element.
- This testing data was submitted to satisfy both reliability and validity testing. Ideally, statistics such as sensitivity, specificity, positive predictive value, and/or negative predictive value would have been provided to demonstrate data element validity, as these give a more complete assessment of accuracy than kappa values alone.
- The Committee was satisfied with the measure's reliability and validity.

3. Feasibility: H-8; M-13; L-2; I-1

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Data collection strategy can be implemented, 3d. Susceptibility to inaccuracies/ unintended consequences identified)

Rationale:

- The Committee discussed that the measure is relatively easy to implement if the center participates in the VQI database. The developer shared that each module costs $2,100 and most institutions will have a several modules. It is more difficult to collect data for this measure if the institution does not participate in the database.
- The developer also shared that that they are working on G-codes for PQRS so that the measure can be reported in other venues besides the VQI registry.
- The Committee was generally satisfied with the feasibility of the measure.
- For future NQF reviews of the measure, the Committee asked the developer to provide more information about who is participating in the registry, including participation rates among solo providers, small hospitals, and surgical provider specialties.

4. Usability and Use: H-7; M-15; L-2; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability, 4b. Quality Improvement)

0465 Perioperative Anti-Platelet Therapy for Patients Undergoing Carotid Endarterectomy: Recommended
Rationale: • The measure is included in the Vascular Quality Initiative for use in internal quality improvement and benchmarking. VQI participants receive benchmark reports to see how they are performing relative to their peers and to the quality goals set for the measure of 90 percent anti-platelet uses for carotid endarterectomy procedures. • The Committee was satisfied with the use and usability of this measure.
5. Related and Competing Measures • This measure is related to 0116 Anti-Platelet Medication at Discharge, percent of patients aged 18 years and older undergoing isolated CABG who were discharged on anti-platelet medication. • NQF staff asked the developers to compare "Anti-platelet therapy" as defined by the measures to identify any differences and opportunities for harmonization. There was general consensus among the Committee for having both measures. The STS Adult Database version 2.81 that went live on 7/1/2014 captures the medications included in Measure 0116.
Standing Committee Recommendation for Endorsement: Y-23; N-1
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day commenting period from May 22, 2015 to June 5, 2015) • There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0533 Postoperative Respiratory Failure Rate (PSI 11): Recommended
Submission | Specifications
Description: Postoperative respiratory failure (secondary diagnosis), mechanical ventilation, or reintubation cases per 1,000 elective surgical discharges for patients ages 18 years and older. Excludes cases with principal diagnosis for acute respiratory failure; cases with secondary diagnosis for acute respiratory failure present on admission; cases in which tracheostomy is the only operating room procedure or in which tracheostomy occurs before the first operating room procedure; cases with neuromuscular disorders, laryngeal or pharyngeal surgery, craniofacial anomalies that had a procedure for the face, esophageal resection, lung cancer, or degenerative neurological disorders; cases with a procedure on the nose, mouth, or pharynx; cases with respiratory or circulatory diseases; and obstetric discharges. **Numerator Statement**: Discharges, among cases meeting the inclusion and exclusion rules for the denominator, with either: • any secondary ICD-9-CM diagnosis code for acute respiratory failure; or • any-listed ICD-9-CM procedure codes for mechanical ventilation for 96 consecutive hours or more that occurs zero or more days after the first major operating room procedure code (based on days from admission to procedure); or • any-listed ICD-9-CM procedure codes for mechanical ventilation for less than 96 consecutive hours (or undetermined) that occurs two or more days after the first major operating room procedure code (based on days from admission to procedure); or • any-listed ICD-9-CM procedure codes for reintubation that occurs one or more days after the first major operating room procedure code (based on days from admission to procedure)

0533 Postoperative Respiratory Failure Rate (PSI 11): Recommended

Denominator Statement: Elective surgical discharges, for patients ages 18 years and older, with any-listed ICD-9-CM procedure codes for an operating room procedure. Elective surgical discharges are defined by specific DRG or MS-DRG codes with admission type recorded as elective

Exclusions: Exclude cases:

• with a principal ICD-9-CM diagnosis code (or secondary diagnosis present on admission) for acute respiratory failure (see numerator details)

• where the only operating room procedure is tracheostomy

• where a procedure for tracheostomy occurs before the first operating room procedure†

• with any-listed ICD-9-CM diagnosis codes for neuromuscular disorder

• with any-listed ICD-9-CM procedure codes for laryngeal or pharyngeal, nose, mouth or pharynx surgery

• with any-listed ICD-9-CM procedure codes involving the face and any-listed ICD-9-CM diagnosis codes for craniofacial anomalies

• with any-listed ICD-9-CM procedure codes for esophageal resection

• with any-listed ICD-9-CM procedure codes for lung cancer

• any-listed ICD-9-CM diagnosis codes for degenerative neurological disorder

• MDC 4 (diseases/disorders of respiratory system)

• MDC 5 (diseases/disorders of circulatory system)

• MDC 14 (pregnancy, childbirth, and puerperium)

• with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing), or principal diagnosis (DX1=missing)

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Administrative claims

Measure Steward: Agency for Healthcare Research and Quality

STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence: 1b. Performance Gap)

1a. Evidence: **Y-22; N-1**; 1b. Performance Gap: **H-16; M-6; L-0; I-0**

Rationale:

- The developer states that this measure is intended to identify adult patients with a clinically significant adverse event that is at least partially preventable: acute respiratory failure as a secondary diagnosis acquired in the hospital.
- Respiratory failure—usually defined as unplanned intubation or prolonged ventilation—is considered to be the most serious of the respiratory complications because of its high morbidity, mortality, and associated costs.
- The developer notes that hospitals can decrease postoperative respiratory failure rates by adopting and following guidelines for assessing perioperative pulmonary risk and implementing recommended preventive strategies for high-risk patients.
- Data provided by the developer show that the total US risk-adjusted rate for postoperative respiratory failure in 2012 was 10.1 per 1,000 surgical patients, representing an estimated total

0533 Postoperative Respiratory Failure Rate (PSI 11): Recommended

of 24,066 events. This rate has increased slightly over time, from 8.2 in 2008, 8.3 in 2009, 8.6 in 2010, and 9.2 in 2011.

- Committee members underscored this outcome's importance by noting that it is also a marker for further poor outcomes.
- The Committee was satisfied that there is a sufficient rationale for measuring postoperative respiratory failure and that there is an opportunity for improvement in this area.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-7; M-15; L-1; I-0**; 2b. Validity: **H-1; M-13; L-8; I-0**

Rationale:

- This indicator excludes the evaluation of patients with major respiratory or circulatory disorders and limits the assessment to patients who undergo an elective surgical procedure.
- The measure is calculated based on discharge data from administrative claims, using ICD-9-CM diagnosis codes to identify the numerator (patients experiencing postoperative respiratory failure) and denominator (adult patients undergoing elective surgical procedures) populations.
- A signal-to-noise analysis of the measure resulted in an overall reliability score of 0.744 (on a scale of 0 to 1), which Committee members agreed showed sufficient reliability.
- However, Committee members noted that reliability decreased as hospital size decreased.
- The Committee discussed whether, from a public reporting perspective, it would be appropriate to refrain from reporting rates for low-reliability (i.e., low-volume) hospitals, instead reporting only that those facilities' limited volume does not allow for a reportable rate to be calculated.
- It was noted that some users of the measure do indeed take this approach, and that the AHRQ software supports implementation of a reliability threshold.
- Some members of the Committee expressed concerns about whether the measure's listed exclusions were too broad, potentially leading to excessive and/or inappropriate exclusions.
- The developers noted that they shared the Committee's concerns about the breadth of the exclusion criteria, and welcomed input from Committee members on how to improve the measure in this respect.
- The developer also clarified that the listed MDC codes are only excluded when they are the patient's principal diagnosis, meaning that the condition is not a co-morbidity or a complication of care but was the primary reason for admission to the hospital.
- The developer added that obstetric patients are excluded because of differences in coding rules for these patients.
- Some Committee members suggested incorporating certain exclusion criteria into the risk-adjustment model, or alternatively, creating separate measures focused on the excluded groups.
- Committee members noted that there have been instances of apparent improvements that turn out to be driven more by changes in documentation and coding practices than actual decreases in respiratory events.
- The developers acknowledged that limitations of diagnosis codes and administrative claims data do have an impact on the measure's validity, but noted that an audit study suggested that the measure has substantial positive predictive value.
- Committee members noted that some level of granularity must be sacrificed in the name of feasible data collection, and suggested that useful information can still be gleaned from

0533 Postoperative Respiratory Failure Rate (PSI 11): Recommended

measures that may seem like blunt instruments.

- The Committee noted that further assessment of these potential threats to validity would be helpful in evaluating this measure during its next maintenance review.

3. Feasibility: H-13; M-9; L-0; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The Committee noted that the measure is based on administrative claims data that are collected during the course of care, and were satisfied that it could be implemented feasibly.

4. Usability and Use: H-8; M-10; L-5; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

Rationale:

- The developer notes that this measure is currently being used in a number of quality improvement and benchmarking initiatives as well as public reporting and other accountability programs.
- The Committee was satisfied with this measure's use and usability.

5. Related and Competing Measures

- No related or competing measures noted.

Standing Committee Recommendation for Endorsement: Y-21; N-2

6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day commenting period from May 22, 2015 to June 5, 2015)

Comments received:

- One commenter emphasized that attribution is important for patients with multiple surgical procedures/services, and recommended that these patients be excluded. If these patients are not excluded, the commenter recommended that the measure developers may consider focusing on which service had the longest operating room (OR) time or actually made the decision to operate. The commenter further adds that plastic surgery, in particular, would suffer in a case with multiple traumas, as it would not be a plastic surgeon's decision to go to the OR. However, once the patient is in surgery, the plastic surgeon placing a flap may be responsible for the longest OR time.

NQF response:

- NQF has reviewed your comment and appreciates your input. Your comment was forwarded to the Developer for consideration and to the Standing Committee.

Developer response:

- PSI 11 is intended to identify postoperative respiratory failure among elective hospitalizations of adult surgical patients. Most of the exclusions apply to patients at very high risk of respiratory failure (i.e., it is unlikely to be preventable), patients with pre-existing respiratory failure, or patients who are likely to require airway protection as a preventive measure. We recognize that some records flagged by PSI 11 involve multiple operations and multiple surgeons. This is often the case when a complication occurs, and if anything, this is a compelling reason NOT to exclude such cases. The care of high-risk surgical inpatients usually involves multidisciplinary teams including (for example) surgeons, anesthesiologists, critical care specialists, radiologists, nurses, and respiratory therapists. PSI 11 is intended and designed as a hospital-level measure; it is neither necessary nor valid to attribute postoperative respiratory failure to a particular procedure, provider, or service within the hospital. Also, because PSI 11 is based only on

0533 Postoperative Respiratory Failure Rate (PSI 11): Recommended
administrative data, it is not possible for the indicator to discern the time duration of operations or which provider decided to operate. We recommend that users of PSI 11 consider the broad intent of the indicator: to flag records in which postoperative respiratory failure is likely to have occurred. Although it is appropriate for users within hospitals to evaluate flagged hospitalizations for potential deficiencies in the quality of care, which may relate to the work of individual health care providers, this step is left to the discretion of users. Committee response: The Committee appreciates the intent of the comment. As a hospital-level measure, it is not reported below the facility level, thus the Committee believes that exclusion of procedures, providers, and/or services is not warranted.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0696 The STS CABG Composite Score: Recommended
Submission | Specifications
Description: The STS CABG Composite Score comprises four domains consisting of 11 individually NQF-endorsed cardiac surgery measures: Domain 1) Absence of Operative Mortality – Proportion of patients (risk-adjusted) who do not experience operative mortality. Operative mortality is defined as death during the same hospitalization as surgery or after discharge but within 30 days of the procedure; Domain 2) Absence of Major Morbidity – Proportion of patients (risk-adjusted) who do not experience any major morbidity. Major morbidity is defined as having at least one of the following adverse outcomes: 1. reoperations for any cardiac reason, 2. renal failure, 3. deep sternal wound infection, 4. prolonged ventilation/intubation, 5. cerebrovascular accident/permanent stroke; Domain 3) Use of Internal Mammary Artery (IMA) – Proportion of first-time CABG patients who receive at least one IMA graft; Domain 4) Use of All Evidence-based Perioperative Medications – Proportion of patients who receive all required perioperative medications for which they are eligible. The required perioperative medications are: 1. preoperative beta blockade therapy, 2. discharge anti-platelet medication, 3. discharge beta blockade therapy, and 4. discharge anti-lipid medication. Domain Score Calculation: The STS CABG Composite Score comprises four domains consisting of eleven individual measures: 1. Absence of Operative Mortality - 0119 Risk-Adjusted Operative Mortality for CABG 2. Absence of Major Morbidity, scored any-or-none - 0131 Risk-Adjusted Postoperative Stroke/Cerebrovascular Accident, 0115 Risk-Adjusted Postoperative Surgical Re-exploration, 0130 Risk-Adjusted Postoperative Deep Sternal Wound Infection, 0114 Risk-Adjusted Postoperative Renal Failure, and 0129 Risk-Adjusted Postoperative Prolonged Intubation (Ventilation) 3. Use of Internal Mammary Artery (IMA) - 0134 Use of IMA in CABG 4. Use of All Evidence-based Perioperative Medications, scored all-or-none - 0127 Preoperative Beta

0696 The STS CABG Composite Score: Recommended

Blockade, 0117 Beta Blockade at Discharge, 0116 Anti-Platelet Medication at Discharge, and 0118 Anti-Lipid Treatment Discharge

Exclusions: Participants with fewer than 10 isolated CABG procedures in the patient population or more than 5 percent missing data on any of the five NQF-endorsed process measures

Adjustment/Stratification: Statistical Risk Model

Level of Analysis: Clinician: Group/Practice, Facility

Setting of Care: Hospital/Acute Care Facility
Type of Measure: Composite
Data Source: Electronic Clinical Data: Registry

Measure Steward: The Society of Thoracic Surgeons

STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence: 1b. Performance Gap: 1c: Composite)

1a. Evidence: **Y-18; N-1**; 1b. Performance Gap: **H-10; M-8; L-0; I-0**; 1c. Composite: **H-16; M-3; L-0; I-0**

Rationale:

- This composite measure, originally endorsed in 2011, includes 11 NQF-endorsed measures - 1 measure of mortality, 5 measures of morbidity, 1 measure of use of internal mammary artery (IMA), and 4 measures of use of evidence-based perioperative mortality.
- The developer notes that the composite provides a more comprehensive measure of overall performance and quality than possible with a mortality measure alone.
- The reported mean composite score for four "harvests" during time periods from July 2012 – June 2013 and July 2013 – June 2014 are 0.967 (latest) with a range from 0.923 to 0.987. Mean scores for the remaining three "harvests" are 0.965, 0.965, and 0.964.
- The Committee agreed the composite meets the criterion of importance.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-14; M-5; L-0; I-0**; 2b. Validity: **H-12; M-7; L-0; I-0**

Rationale:

- The mortality and morbidity measures that are included in the measure are risk adjusted. Exclusions for the measure are those within the individual measures included in the composite – use of IMA and the four medication measures. There are no exclusions for the morbidity and mortality measures.
- Each of the four domains of the composite is scored and an overall composite score is created from the four domain scores. The composite scoring and provider rating was described in detail.
- In response to the Committee's questions regarding the composite construction, weighting, and score calculation, developers provided detail about the aggregation method for the composite and the method of arriving at a weighted average of the domain scores. Specific detail regarding the model was provided.

0696 The STS CABG Composite Score: Recommended
• The Committee noted that the model used for the measure is appropriate. • Reliability testing was conducted using a signal-to-noise ratio with mean reliability of 0.71 in institutions with 50 or more operations and 0.72 in those with 100 or more operations. • To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance. • The Committee determined that the measure has been tested using appropriate methods and scope with adequate results meeting requirements for validity and reliability.
3. Feasibility: H-15; M-4; L-0; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Data collection strategy can be implemented)* Rationale: • The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care. • The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications. • The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed. • The committee was satisfied with the measure's feasibility.
4. Usability and Use: H-15; M-4; L-0; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability, 4b. Quality Improvement), 4c.Susceptibility to inaccuracies/ unintended consequences identified* Rationale: • The developer reports that the measure is publicly reported through the STS public reporting program and through Consumer Reports. It is also used for quality improvement including with benchmarking. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • The 20 related measures identified are NQF-endorsed measures developed by STS, 11 of which are component measures of the CABG composite. The developer indicates they are harmonized.
Standing Committee Recommendation for Endorsement: Y-18; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day Public and Member Comment: May 22, 2015 to June 5, 2015) • There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0732 Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories: Recommended

Submission | Specifications

Description: Surgical volume for pediatric and congenital heart surgery: total programmatic volume and programmatic volume stratified by the 5 Society of Thoracic Surgeons - European Association for Cardio-Thoracic Surgery Congenital Heart Surgery Mortality Categories (STAT Mortality Categories), a multi-institutional validated complexity stratification tool

Numerator Statement: 1) Total number of pediatric and congenital cardiac surgery operations and 2) number of pediatric and congenital cardiac surgery operations in each of the strata of complexity specified by the 5 Society of Thoracic Surgeons - European Association for Cardio-Thoracic Surgery Congenital Heart Surgery Mortality Categories (STAT Mortality Categories), a multi-institutional validated complexity stratification tool

Denominator Statement: N/A

Exclusions: N/A

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility, Clinician: Group/Practice

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Structure

Data Source: Electronic Clinical Data: Registry

Measure Steward: The Society of Thoracic Surgeons

STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence: 1b. Performance Gap)

1a. Evidence: **H-9; M-7; L-4; I-0**; 1b. Performance Gap: **H-10; M-8; L-2; I-0**

Rationale:

- This structure measure is paired with an operative mortality measure that is stratified by the 5 STAT categories to enable understanding of pediatric and congenital heart surgery that neither can provide alone.
- The developer reported that papers using data from the STS Congenital Heart Surgery Database show that there is a relationship between volume and outcome that is amplified at high-complexity surgeries and that high volume centers tend to perform better, especially the more complex surgeries though there are low volume centers that do achieve excellent results.
- The developer reported that from 1998 until 2014, discharge mortality and operative morbidity across the 5 STAT categories has declined each year, most notably in the most complex of the five categories. During the period that the measures have been in place, participation in the registry by eligible providers has increased from some 60 – 70 percent to 95 percent.
- The Committee agreed that the variability indicated by the 5 percent of surgeries not now captured represents the absence of important data given patient population involved and the information it provides that can be used for patient decision making and public accountability.
- The measure, with the companion mortality measure, gives hospitals a way to view and track outcomes within and across the 5 complexity levels.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

0732 Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories: Recommended

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-15; M-4; L-0; I-0**; 2b. Validity: **H-12; M-6; L-2; I-0**

Rationale:

- The measure is clearly specified.
- To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities.
- Data submitted by the developer show that in the 10 percent of STS Congenital Heart Surgery Database participants subjected to audit, there was overall data completeness agreement rate of 97.68 percent and overall data accuracy agreement rate of 97.45 percent.
- There are no exclusions for the measure.
- The Committee determined that the measure meets requirements for data element validity and reliability.

3. Feasibility: H-15; M-6; L-0; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources and 3c. Data collection strategy can be implemented)

Rationale:

- The data source for this measure is the STS Congenital Heart Surgery Database. Data elements for the measure are generated or collected during the provision of care.
- The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications.
- The developer reports that over 95 percent of programs that provide pediatric and congenital cardiac surgery in the U.S. participate in the STS database for which annual and per record fees are assessed.
- The committee was satisfied with the measure's feasibility.

4. Usability and Use: H-17; M-2; L-1; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability; 4b. Quality Improvement); 4c.Susceptibility to inaccuracies/ unintended consequences identified

Rationale:

- The developer reported that the measure is now in the first round of public reporting, which began in January 2015, for the 23 percent of database participants who enrolled in the STS public reporting program. It is anticipated that public reporting through Consumer Reports will follow. It is also used for quality improvement including with benchmarking.
- Public reporting of the measure provides volume for each of the five STAT categories with mortality in each of the five categories captured by the companion mortality measure represented by an observed to expected ratio and risk adjusted mortality.
- The developer reported that STS has partnered with parent advocacy groups one of which is helping ensure that public reporting text is explained in layman's terms.
- The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients.

0732 Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories: Recommended
• The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • Four related measures are identified. Three are STS measures, one is the mortality measure with which this measure is paired. The fourth measure is 0339, a pediatric heart surgery mortality measure based on administrative data that uses a risk-adjustment classification – RACHS-1. Its companion volume measure, 0340, also uses administrative data. The developers will be asked to continue harmonization effort as ICD-10 is implemented.
Standing Committee Recommendation for Endorsement: Y-18; N-2
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day Public and Member Comment: May 22, 2015 to June 5, 2015) • There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0733 Operative Mortality Stratified by the Five STAT Mortality Categories: Recommended
Submission | Specifications
Description: Percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure, stratified by the five STAT Mortality Levels, a multi-institutional validated complexity stratification tool **Numerator Statement**: Number of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure, stratified by the five STAT Mortality Levels, a multi-institutional validated complexity stratification tool **Denominator Statement**: All patients undergoing index pediatric and/or congenital heart surgery **Exclusions**: N/A **Adjustment/Stratification**: Stratification by risk category/subgroup **Level of Analysis**: Clinician: Group/Practice, Facility **Setting of Care**: Hospital/Acute Care Facility **Type of Measure**: Outcome (Paired with 0732 Volume) **Data Source**: Electronic Clinical Data: Registry **Measure Steward**: The Society of Thoracic Surgeons
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015] **1. Importance to Measure and Report: The measure meets the Importance criteria**

0733 Operative Mortality Stratified by the Five STAT Mortality Categories: Recommended

(1a. Evidence: 1b. Performance Gap)

1a. Evidence: **Y-21; N-0**; 1b. Performance Gap: **H-8; M-10; L-1; I-0**

Rationale:

- This mortality measure is paired with volume measure that is stratified by the 5 STAT categories to enable understanding of pediatric and congenital heart surgery that neither can provide alone.
- The developer noted that the literature shows there is substantial variation across institutions in each of the 5 STAT categories, especially in levels 4 and 5.
- The Committee pointed out that the measure captures neonates, infants, and patients (pediatric and adult) who have congenital repair facilitating evaluation of risk specific to population and procedure that can lead to improvement in improved patient selection, surgical technique and post-operative care to avoid mortality.
- The Committee noted that the current mortality rate of 3.4 percent may have greatest value for public accountability.
- The developer noted that participants receive the data using a four-year window and a one-year (most recent) window to better identify and address outliers.
- The Committee noted mortality rates in Category 1 in July 2010 – June 2011 was 0.75 percent compared to July 2013 – June 2014 at 0.38 percent and for Category 5 in the same time periods as 18.8 percent compared to 12.75 percent demonstrating improvement over time.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-16; M-4; L-1; I-0**; 2b. Validity: **H-17; M-3; L-1; I-0**

Rationale:

- The measure is clearly specified.
- To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities.
- Data submitted by the developer show that in the 10 percent of STS Congenital Heart Surgery Database participants subjected to audit, there was overall data completeness agreement rate of 97.68 percent and overall data accuracy agreement rate of 97.45 percent.
- To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance.
- Testing results provided by the developer showed that registry participants in low, middle and high observed rates of mortality on the measure in one time period (July 2010 – June 2012) had correspondingly low, mid, and high rates of mortality in the following period (July 2012 – June 2014).
- The measure is stratified by risk category; stratification details are provided.
- There are no exclusions for the measure.
- The Committee determined that the measure has been tested using appropriate methods and

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scope with adequate results meeting requirements for data element validity and reliability.
3. Feasibility: H-15; M-4; L-1; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; and 3c. Data collection strategy can be implemented)* Rationale: • The data source for this measure is the STS Congenital Heart Surgery Database. Data elements for the measure are generated or collected during the provision of care. • The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications. • The developer reports that over 95 percent of programs that provide pediatric and congenital cardiac surgery in the U.S. participate in the STS database for which annual and per record fees are assessed. • The committee was satisfied with the measure's feasibility.
4. Usability and Use: H-14; M-5; L-1; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability; 4b. Quality Improvement) and 4c.Susceptibility to inaccuracies/ unintended consequences identified* Rationale: • The developer reported that the measure is now in the first round of public reporting, which began in January 2015, for the 23 percent of database participants who enrolled in the STS public reporting program. It is anticipated that public reporting through Consumer Reports will follow. It is also used for quality improvement including with benchmarking. • Public reporting of the measure provides mortality for each of the five STAT categories, with volume in each of the five categories captured by the companion measure, represented by an observed to expected ratio and risk adjusted mortality. • In discussing burden of data collection, the developer noted that data is entered electronically so only those fields that are relevant present themselves as they are triggered by data entry. A Committee member commented that the maximum amount of time required at his facility is about 20 minutes per operation. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • Four related measures are identified. Three are STS measures, one is the volume measure with which this measure is paired. One is a new pediatric and congenital heart surgery risk-adjusted mortality measure. The fourth measure is 0339, a pediatric heart surgery mortality measure based on administrative data that uses a risk-adjustment classification – RACHS-1. Its companion volume measure, 0340, also uses administrative data. The developer noted that the list of eligible procedures has been cross-mapped to both CPT and ICD-9 codes making it possible to collect the data for the measure outside the registry. The developers will be asked to continue harmonization effort as ICD-10 is implemented.
Standing Committee Recommendation for Endorsement: Y-21; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day Public and Member Comment: May 22, 2015 to June 5, 2015)

0733 Operative Mortality Stratified by the Five STAT Mortality Categories: Recommended
• There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

1501 Risk-Adjusted Operative Mortality for Mitral Valve (MV Repair): Recommended
Submission | Specifications
Description: Percent of patients aged 18 years and older undergoing MV Repair who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure (This measure applies to the procedure of MV repair, regardless of approach) **Numerator Statement**: Number of patients aged 18 years and older undergoing MV Repair who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Denominator Statement**: All patients undergoing isolated MV repair surgery **Exclusions**: N/A **Adjustment/Stratification**: No risk adjustment or risk stratification **Level of Analysis**: Facility, Clinician: Group/Practice **Setting of Care**: Hospital/Acute Care Facility **Type of Measure**: Outcome **Data Source**: Electronic Clinical Data: Registry **Measure Steward**: The Society of Thoracic Surgeons
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015] **1. Importance to Measure and Report: The measure meets the Importance criteria** *(1a. Evidence: 1b. Performance Gap)* 1a. Evidence: **Y-21; N-0**; 1b. Performance Gap: **H-6; M-15; L-0; I-0** Rationale: • The Committee reiterated that a lengthy discussion of evidence related to outcome measures for cardiac surgery had been discussed during the review of measure 0115, which had preceded this one. Accordingly, the Committee moved to immediate vote on this criterion. • Mortality rates for two time periods, July 2008 – June 2011 and July 2011 – June 2014 were noted. In the earlier time period, the average rate was 1.47 percent with a range of 0.46 to 5.09 percent. In the more recent time period, the average rate was 1.28 percent with a range from 0.65 to 2.83 percent. STS participant-specific mortality rates for the measure demonstrate variation ranging from 0.1 percent in the highest performing hospitals/groups to 3.0 percent in lowest performing hospitals/groups for period ending in June 2014. • The Committee agreed that the measure meets the criterion of importance to measure and report.

1501 Risk-Adjusted Operative Mortality for Mitral Valve (MV Repair): Recommended

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-15; M-6; L-0; I-0**; 2b. Validity: **H-16; M-6; L-0; I-0**

Rationale:

- The measure is precisely specified.
- To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities.
- Data submitted by the developer show that in the 10 percent of STS Adult Cardiac Surgery Database participants subjected to an audit, there was 95.73 percent agreement between information submitted to the registry by participants and information re-abstracted by independent auditors.
- To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance.
- Testing results showed that registry participants that were "high" performers on MV repair operative mortality in one time period (July 2008 – June 2011) had a lower mortality rate (0.2 percent) in the following period (July 2011 – June 2014) while the mortality rates for those in the middle and low performance groups during the first period were reversed in the later period (1.3 percent and 0.9 percent, respectively), demonstrating variability.
- The measure is risk adjusted and both the risk model and risk factors are described in detail.
- There are no exclusions for the measure.
- The Committee determined that the measure has been tested at the data element and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.

3. Feasibility: H-15; M-6; L-1; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)

Rationale:

- The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care.
- The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications.
- The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed.
- The committee was satisfied with the measure's feasibility.

4. Usability and Use: H-18; M-4; L-0; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

Rationale:

- The developer reports that the measure is used for quality improvement including with benchmarking and will be publicly reported through the STS public reporting program and

1501 Risk-Adjusted Operative Mortality for Mitral Valve (MV Repair): Recommended
through Consumer Reports in 2016. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • The measure is a component of the STS isolated mitral valve surgery composite. Nine related NQF-endorsed STS measures are listed. It is noted that the measures are harmonized.
Standing Committee Recommendation for Endorsement: Y-20; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day Public and Member Comment: May 22, 2015 to June 5, 2015) • There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

1502 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair + CABG Surgery: Recommended
Submission | Specifications
Description: Percent of patients aged 18 years and older undergoing combined MV Repair and CABG who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Numerator Statement**: Number of patients aged 18 years and older undergoing combined MV Repair and CABG who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Denominator Statement**: All patients undergoing combined MV Repair + CABG **Exclusions**: N/A **Adjustment/Stratification**: No risk adjustment or risk stratification **Level of Analysis**: Facility, Clinician: Group/Practice **Setting of Care**: Hospital/Acute Care Facility **Type of Measure**: Outcome **Data Source**: Electronic Clinical Data: Registry **Measure Steward**: The Society of Thoracic Surgeons
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015] **1. Importance to Measure and Report: The measure meets the Importance criteria** *(1a. Evidence: 1b. Performance Gap)* 1a. Evidence: **Y-19; N-0**; 1b. Performance Gap: **H-9; M-10; L-0; I-0** Rationale: • The Committee reiterated that a lengthy discussion of evidence related to outcome measures for cardiac surgery had been discussed during the review of measure 0115, which had preceded

1502 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair + CABG Surgery: Recommended
this one. Accordingly, the Committee moved to immediate vote on this criterion. • The Committee noted that mortality rates for two time periods, July 2008 – June 2011 and July 2011 – June 2014 demonstrate a performance gap. In the earlier time period, the average rate was 5.24 percent with a range of 3.03 percent to 14.49 percent. In the more recent time period, the average rate was 5.07 percent with a range from 3.12 to 8.01 percent. STS participant-specific mortality rates for the measure demonstrate variation ranging from 1.2 percent in the highest performing hospitals/groups to 10.0 percent in lowest performing hospitals/groups for period ending in June 2014. • The Committee agreed that the measure meets the criterion of importance to measure and report.
2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria *(2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity)* 2a. Reliability: **H-15; M-6; L-0; I-0**; 2b. Validity: H-11; M-8; L-0; I-0 Rationale: • The measure is precisely specified. • To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities. • Data submitted by the developer show that in the 10 percent of STS Adult Cardiac Surgery Database participants subjected to an audit, there was 95.73 percent agreement between information submitted to the registry by participants and information re-abstracted by independent auditors. • To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance. • Testing results provided by the developer showed that registry participants with the lowest rates (high performers) of post-operative mortality after combined MV repair plus CABG surgery in one time period (July 2012 – June 2013) had correspondingly low rate of mortality in the following period (July 2013 – June 2014) while the mortality rates for those in the middle and low performance groups during the first period were reversed in the later period. Mortality rates in the later period ranged from 1.2 percent in the high performing group to 10.0 percent in the lowest performing group. • The measure is risk adjusted and both the risk model and risk factors are described in detail. • There are no exclusions for the measure. • The Committee determined that the measure has been tested at the data element and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.
3. Feasibility: H-15; M-6; L-1; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified)* Rationale: • The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care.

1502 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair + CABG Surgery: Recommended

- The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications.
- The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed.
- The committee was satisfied with the measure's feasibility.

4. Usability and Use: H-18; M-4; L-0; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability; 4b. Quality Improvement) and 4c.Susceptibility to inaccuracies/ unintended consequences identified)

Rationale:

- The developer reports that the measure is publicly reported through the STS public reporting program and through Consumer Reports. It is also used for quality improvement including with benchmarking.
- Overall rates of post-operative mortality following MV repair plus CABG surgery have been steadily declining with a reported rate in the most recent period reported at 2.2 percent.
- The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients.
- The Committee was satisfied with the measure's usability.

5. Related and Competing Measures

- Nine NQF-endorsed STS measures are identified. The developer notes they are harmonized.

Standing Committee Recommendation for Endorsement: Y-19; N-0

6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day Public and Member Comment: May 22, 2015 to June 5, 2015)

- There were no comments received for this measure.

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

2038 Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse: Recommended

Submission | Specifications

Description: Percentage of patients undergoing hysterectomy for the indication of pelvic organ prolapse in which a concomitant vaginal apical suspension (i.e. uterosacral, iliococygeus, sacrospinous or sacral colpopexy, or enterocele repair) is performed.

Numerator Statement: The number of patients who have a concomitant vaginal apical suspension (i.e.enterocele repair, uterosacral-, iliococygeus-, sacrospinous- or sacral- colpopexy) at the time of hysterectomy for pelvic organ prolapse.

Denominator Statement: Hysterectomy performed for the indication of pelvic organ prolapse

Exclusions: • Patients with a gynecologic or other pelvic malignancy noted at the time of hysterectomy

• Patients undergoing a concurrent obliterative procedure (colpocleisis)

2038 Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse: Recommended

Adjustment/Stratification: No risk adjustment or risk stratification
Level of Analysis: Clinician: Group/Practice, Clinician: Individual
Setting of Care: Hospital/Acute Care Facility
Type of Measure: Process
Data Source: Administrative claims, Electronic Clinical Data: Electronic Health Record

Measure Steward: American Urogynecologic Society

STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence: 1b. Performance Gap)

1a. Evidence: **H-5; M-17; L-1; I-0**; 1b. Performance Gap: **H-19; M-4; L-0; I-0**

Rationale:

- Evidence presented by the developer included a 2007 ACOG clinical practice guideline that was reaffirmed in 2011: "When hysterectomy is performed for uterine prolapse attention must be directed toward restoration of apical support once the uterus is removed." The developer also references a 2012 systematic review that included information from 3 RCTs conducted between 1950 and 2011. Developers note that "some evidence was of moderate quality, including evidence of lower recurrence rates with vaginal hysterectomy and repair vs. sacrohysteropexy". The developer noted that many women undergo surgery, over 200,000 surgeries a year, for pelvic organ prolapse and up to 34 percent of them do not undergo a concurrent colpopexy or apical suspension procedure, which results in an elevated risk for need for re-operation within 10 years.
- The Committee discussed specifics related to the procedure (it can be done vaginally, abdominally, retroperitoneally and, because of complexity, can double or triple the time of the operation) and increase risk of ureteric kinking or injury. They questioned the potential for unintended consequences of pushing surgeons who are not adequately trained to do this more difficult procedure.
- Some Committee members questioned the strength of the evidence (grade B and C evidence) since it is a process measure that would require everyone in the denominator to have the procedure. The Committee generally felt that the evidence is as robust as can be expected given the newness of this gynecologic reconstruction surgery subspecialty and the retrospective nature of the data.
- Information submitted by the developer indicates that "an analysis of discharge data from 343 California hospitals between 2002 and 2006 revealed that only 35 percent of women have a concurrent colpopexy at the time of hysterectomy." The Committee agreed that there is an opportunity for improvement.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-8; M-13; L-4; I-0** 2b. Validity: **H-2; M-16; L-6; I-0**

Rationale:

- The developer reported that to address the concerns regarding testing from the last cycle, they changed their testing approach from reporting based only on billing codes to using electronic and paper chart review. The reliability evaluation or calculations in this submission are based on

2038 Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse: Recommended
the identification of a hysterectomy based on ICD-9, ICD-10 or CPT codes for hysterectomy supported by diagnosis of prolapse, and then chart review to confirm the presence or absence of an apical suspension procedure. Data used in testing were derived from information about operations on 3,908 patients by 301 surgeons in 4 hospital systems. • Some Committee members commented on the small number of cases that are being used to generalize about performance of the measure and its reliability for a relatively high-volume procedure but agreed the chart review answers the question of reliability. • Developers have presented results of validity testing at the measure score level. Instead of using the apical suspension administrative codes to calculate the numerator (which was done previously), the developers used chart review. The issue of billing codes for apical suspension which were erroneous at one of the four institutions (that codes apical suspension differently) is mitigated by chart review. The denominator is correctly calculated from billing codes. • The Committee generally found the reliability and validity information submitted by the developers to be sufficient.
3. Feasibility: H-0; M-16; L-8; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Data collection strategy can be implemented)* Rationale: • The Committee had concerns about the burden of chart review and abstraction. The developer shared that data is abstracted from a small number (2-3) of data elements in the op note of the chart. • The Committee noted that in future years, creation of bundled administrative codes that include hysterectomy with different suspensions and repair codes. • The Committee generally agreed that data collection is feasible.
4. Usability and Use: H-3; M-17; L-4; I-0 *(Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)* Rationale: • The measure is not currently in use. The developer notes that the data elements used in this measure will soon be collected in a national Pelvic Floor Disorder Registry (PFDR). Post meeting addition: The developer reports that data collection has begun. • The Committee was satisfied with the planned use and usability of this measure.
5. Related and Competing Measures • This measure is related to 2063 Performing cystoscopy at the time of hysterectomy for pelvic organ prolapse to detect lower urinary tract injury, described as the percentage of patients who undergo cystoscopy to evaluate for lower urinary tract injury at the time of hysterectomy for pelvic organ prolapse. • The Committee questioned whether this measure and the cystoscopy measure (#2063) should be combined. The developers responded that exclusion criteria for the measures are different and that the goals of each measure are different – #2038 is close to an outcome measure and #2063 is primarily a safety procedure and each should have a period of separate implementation and evaluation. The Committee recommended a future evaluation to address whether or not they are connected, and if and how they should be harmonized or combined.
Standing Committee Recommendation for Endorsement: Y-22; N-2
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day Public and

2038 Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse: Recommended
Member Comment: May 22, 2015 to June 5, 2015) • There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

2677 Preoperative Evaluation for Stress Urinary Incontinence prior to Hysterectomy for Pelvic Organ Prolapse: Recommended
Submission | Specifications
Description: Percentage of women undergoing hysterectomy for pelvic organ prolapse who have preoperative evaluation for stress urinary incontinence. **Numerator Statement**: Number of women undergoing hysterectomy for pelvic organ prolapse who had preoperative evaluation for stress urinary incontinence. Denominator Statement: All women undergoing hysterectomy (identified by CPT codes) for the indication of pelvic organ prolapse (identified by supporting ICD9 codes). **Exclusions**: None. **Adjustment/Stratification**: No risk adjustment or risk stratification **Level of Analysis**: Clinician: Group/Practice **Setting of Care**: Hospital/Acute Care Facility **Type of Measure**: Process **Data Source**: Electronic Clinical Data: Electronic Health Record **Measure Steward**: American Urogynecologic Society
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015] **1. Importance to Measure and Report: The measure meets the Importance criteria** *(1a. Evidence: 1b. Performance Gap)* 1a. Evidence: **H-0; M-14; L-5; I-2**; 1b. Performance Gap: **H-5; M-15; L-2; I-0** Rationale: • Evidence presented by the developer included one systematic review of surgical treatment of pelvic organ prolapse (POP) and stress urinary incontinence (SUI) with a flow diagram demonstrating the evidence that evaluation of urinary symptoms preoperatively (cough stress test) can benefit patients. The developer shared that based on the studies, risk of urinary leakage following repair of POP is as high as 63 percent but can be reduced to 11 percent if assessment of bladder function is triaged and incontinence surgery performed with POP repair. • The Committee discussed if there is sufficient evidence linking the process to an outcome (doing a preoperative cough stress test prior to prolapse surgery provides additional information that, in discussion with patients, can lead to better outcomes) and if a process measure that assesses whether the evaluation is done moves toward impacting outcome. Some Committee members observed that the performing the stress test supports shared decision-making between the patient and the surgeon.

2677 Preoperative Evaluation for Stress Urinary Incontinence prior to Hysterectomy for Pelvic Organ Prolapse: Recommended

- The developers provide unpublished data (attributed to a study of 4 sites by American Urogynecologic Society) that preoperative evaluation of SUI (type not specified) among low, intermediate and high volume surgeon groups is at 63.1 percent, 73.1 percent and 93.5 percent respectively.
- The Committee agreed that there is opportunity for improvement on this measure.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-2; M-19; L-2; I-0**; 2b. Validity: H-1; M-20; L-2; I-0

Rationale:

- The Committee clarified that the condition and the procedure of interest is identified in the health record using CPT and ICD codes and documentation of evaluation for stress urinary incontinence is done by review of the paper chart. The Committee commented on how chart review may lead to under-reporting of the stress test as not all surgeons may comment on it in their dictation.
- Reliability testing involved chart review of 15 percent of randomly selected charts from across 4 centers. Interabstractor reliability testing was then done using a subsample of 33 records from 3 sites with results of 95.1 percent agreement.
- Validity testing at the measure score level was provided.
- The Committee generally found the reliability and validity information submitted by the developers to be sufficient.

3. Feasibility: H-1; M-15; L-5; I-1

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- Some Committee members raised concerns about how this measure would be operationalized since data comes from the chart in an office setting and the ICD-9 codes from a hospital. Committee members and the developer provided examples for how this is operationalized and how surgeon note that stress test was done, results and influence on outcome may need to evolve to enable data collection.
- The developer shared that they plan to implement this measure as a part of a national web-based data registry, the Pelvic Floor Disorders Registry. The registry has an online interface and does not require membership in any society. Post meeting addition: The developer reports that data collection has begun.
- The Committee was generally satisfied with feasibility of the measure.

4. Usability and Use: H-1; M-14; L-7; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

Rationale:

- The Committee was generally satisfied with the intended use and usability of this measure.

5. Related and Competing Measures

- No related or competing measures noted.

Standing Committee Recommendation for Endorsement: Y-16; N-6

2677 Preoperative Evaluation for Stress Urinary Incontinence prior to Hysterectomy for Pelvic Organ Prolapse: Recommended
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day Public and Member Comment: May 22, 2015 to June 5, 2015) Comments received: • One commenter noted that there is strong clinical evidence to conduct a pre-operative stress urinary incontinence (SUI) evaluation prior to preforming a hysterectomy for pelvic prolapse. This measure would require the findings from this assessment to be submitted as an electronic data measure. However, based on current challenges with electronic data submission, the commenter does not believe this is feasible. The commenter also stated that the pilot project was limited (i.e., this measure was tested in four hospitals and 301 surgeons) and there is no indication that this data can be electronically collected with disparate EHRs. NQF response: • NQF has reviewed your comment and appreciates your input. Your comment was forwarded to the Developer for consideration and to the Standing Committee. Developer response: • Developer response: Thank you for your comment on measure #2677, Preoperative evaluation for stress urinary incontinence prior to hysterectomy for pelvic organ prolapse. The evaluation for SUI prior to a hysterectomy is readily available in the preoperative evaluation. It requires review of the progress notes, history and physical or operative note. Review of the clinical record in our experience readily revealed whether or not an evaluation for SUI was done. It is true that it is not a code (e.g. cpt code) and that it is not searchable (e.g. lab or lab value) but it is feasible. The four hospital systems in the study we conducted all had EHRs. This allowed us to find the information at 22 different hospitals in the 4 hospitals systems. This experience is consistent with this measure being feasible. Individual surgeons will collect this data and report this measure via a Registry, rather than hospitals. The Registry prospectively collects this data for those who are participating, making the data easily accessible. Committee response: • The Committee appreciates the concern regarding the current state of EHRs. The Committee agreed during the in-person meeting that specification of the measure for data collection from a participant registry will enable its use.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

2681 Perioperative Temperature Management: Recommended
Submission | Specifications
Description: Percentage of patients, regardless of age, who undergo surgical or therapeutic

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procedures under general or neuraxial anesthesia of 60 minutes duration or longer for whom at least one body temperature greater than or equal to 35.5 degrees Celsius (or 95.9 degrees Fahrenheit) was recorded within the 30 minutes immediately before or the 15 minutes immediately after anesthesia end time

Numerator Statement: Patients for whom at least one body temperature greater than or equal to 35.5 degrees Celsius (or 95.9 degrees Fahrenheit) was recorded within the 30 minutes immediately before or the 15 minutes immediately after anesthesia end time.

Denominator Statement: All patients, regardless of age, who undergo surgical or therapeutic procedures under general or neuraxial anesthesia of 60 minutes duration or longer.

Exclusions: The measure excludes patients undergoing cardiopulmonary bypass and those patients receiving regional nerve block or monitored anesthesia care without general anesthesia.

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Clinician: Group/Practice, Clinician: Individual

Setting of Care: Ambulatory Care: Ambulatory Surgery Center (ASC), Hospital/Acute Care Facility

Type of Measure: Intermediate Clinical Outcome

Data Source: Administrative claims, Electronic Clinical Data

Measure Steward: American Society of Anesthesiologists

STANDING COMMITTEE MEETING [3/19/2015-3/20/2015]

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence: 1b. Performance Gap)

1a. Evidence: **H-13; M-7; L-0; I-0; IE-1**; 1b. Performance Gap: **H-2; M-18; L-0; I-0**

Rationale:

- This measure was developed as a revision to the previously endorsed measure 0454, with more emphasis being placed on the outcome (temperature of 35.5 degrees) rather than processes of care.
- Evidence presented by the developer included 2010 American Society of PeriAnesthesia Nurses (ASPAN) clinical practice guidelines. The Committee generally concluded that ample evidence showing the linkage between postoperative hypothermia and adverse outcomes was provided.
- Some Committee members raised concerns about the subjectivity related to “surgery end time” ” but were generally accepting of the information that it is a point in time that is recorded for every case.
- The Committee agreed that postoperative hypothermia is a bad outcome with potentially bad sequelae and that there is opportunity for improvement on this measure, particularly among the lowest 3 deciles of practitioner group represented in the 2013 data.
- The Committee was generally satisfied with the evidence for this measure, asking only that it be classified as an intermediate outcome measure to which the developer was agreeable.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-4; M-13; L-3; I-0**; 2b. Validity: **H-3; M-13; L-4; I-0**

Rationale:

- Data used for testing was obtained from the 2010-2013 public use files of the Anesthesia Quality Institute’s National Anesthesia Clinical Outcome Registry (NACOR). These data included 10,590

2681 Perioperative Temperature Management: Recommended

patients cared for by 232 physicians or nurse anesthetists.

- The developer provided the average reliability for each year based on signal to noise analysis (0.523, 0.661, 0.466, and 0.644 for 2010, 2011, 2012, and 2013, respectively). When exclusions are applied per the measure specifications, the reliability is even lower (0.527, 0.611, 0.424, and 0.531 for 2010, 2011, 2012, and 2013, respectively). The developer acknowledges the low reliability of the measure, which was based on small sample size, but suggests that reliability will increase when more data are available in the NACOR and through CPT coding.
- The Committee discussed to what extent equipment (temperature probes, forehead stickers, etc.) plays a role in the reliability of the measure. The developer provided that esophageal, pulmonary artery and when placed correctly, nasopharyngeal can well reflect core temperature.
- Face validity of the performance measure score was assessed by 23 physician experts. Of these, 16 (70 percent) either agreed or strongly agreed that this measure can accurately distinguish good and poor quality; 4 of these physicians (17 percent) either disagreed or strongly disagreed, and 3 neither agreed nor disagreed. The average rating was 3.78 (from a 5-point scale).
- Some Committee members expressed that they would like to have seen data element validity testing as well and questioned whether having multiple temperature measurements versus one would be better.

3. Feasibility: H-11; M-7; L-1; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The developers noted that there may be cases when chart abstraction is necessary but the data should be readily available as a vital sign.
- The Committee was generally satisfied with the feasibility of this measure.

4. Usability and Use: H-10; M-8; L-1; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

Rationale:

- Committee members discussed a potential unintended consequence being hyperthermia and the developer responded that while it is a concern anytime that patients are actively warmed, the evidence of the benefits in preventing hypothermia are significant.
- The developers shared that as a result of this measure, practitioners may move away from forehead skin temperature management. They also reflected that it is still going to be difficult in cases of neuraxial anesthesia to get a valid core temperature because none of the modalities commonly used are very easy to apply in someone who is not intubated.
- ASA and AQI/NACOR intend to allow Eligible Professionals to report this measure via the Physician Quality Reporting System, Qualified Clinical Data Registry reporting mechanism beginning in 2015. ASA has submitted this measure to CMS for inclusion in PQRS 2016.
- The Committee was generally satisfied with the use and usability of this measure.

5. Related and Competing Measures

- No related or competing measures noted.

Standing Committee Recommendation for Endorsement: Y-19; N-0

6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day Public and Member Comment: May 22, 2015 to June 5, 2015)

Comments received:

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- One commenter recommends that clarification be provided, regarding "surface temperature" or "core temperature", citing:
  - "Core" seems to be more accurate, but it involves a probe in the nose, mouth, rectum, or bladder.
  - "Surface" is also acceptable, but recommended that the definition is specified because it is at least 1 degree different.

NQF response:

- NQF has reviewed your comment and appreciates your input. Your comment was forwarded to the Developer for consideration and to the Standing Committee.

Developer response:

- Thank you for your comment. The ASA recognizes that the temperature threshold can be met either by measuring core or surface temperature. Anesthesia providers consistently and more often use core temperature than surface temperature when evaluating patients. Core temperature is more accurate than surface and, as stated in the measure rationale, patient outcomes are strongly influenced by intraoperative anesthesia practice and the attention paid to preserving and supporting core body temperature during the case. During surgery, anesthesia standards and guidelines suggest that anesthesia providers continually monitor core temperature, especially for procedures that last more than an hour. After surgery, the sublingual or temporal temperature measurement commonly performed in the PACU is a form of core body temperature. The literature cited in support of this measure is based on evaluation of core body temperature as well. We expect that surface temperature in a significant majority of cases will be lower than core temperatures within the measure's required assessment time. Should a patient not meet the established threshold of 35.5 degrees Centigrade via a surface temperature reading, the provider may wish to consider establishing processes to capture core temperature as well.

Committee response:

- The Committee appreciates the precision requested by the commenter as well as the clarity provided by the developer. During the in-person meeting, after considerable discussion of methods, devices used and timing, the Committee agreed that differences will occur for a number of reasons. The Committee agrees that institutional processes would define a number of parameters to ensure accuracy of measurement and improved temperature management.

7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X

8. Board of Directors Vote: Y-X; N-X

9. Appeals

2683 Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery: Recommended

Submission | Specifications

Description: Percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure

Numerator Statement: Percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care

2683 Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery: Recommended

facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure

Denominator Statement: All patients undergoing index pediatric and/or congenital heart surgery

Exclusions: Patients weighing less than or equal to 2,500 grams undergoing isolated patent arterial duct (PDA) ligation as their primary procedure are excluded. We acknowledge that mortality after surgical PDA closure in low-birth weight premature infants can be related to surgical judgment or technique; however, the vast majority of deaths in this patient population are multi-factorial and largely unrelated to the surgical procedure in time and by cause. Therefore, because mortality in this patient group could potentially impact significantly on the expression of overall programmatic mortality, a decision was made to exclude from mortality analysis patients weighing less than or equal to 2,500 g undergoing PDA ligation as their primary procedure.

-All operations where the primary procedure is either pectus repair or bronchoscopy are not classified as cardiac operations (i.e., they are thoracic procedures) and thus, they are excluded from the denominator.

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility, Clinician: Group/Practice

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Electronic Clinical Data: Registry

Measure Steward: The Society of Thoracic Surgeons

STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Y-21; N-0**; 1b. Performance Gap: **H-12; M-9; L-0; I-0**

Rationale:

- The developer reports that this new measure provides risk adjusted mortality based on variables that include operation being performed, STAT category of the operation, a number of preoperative factors that together allow calculation of risk adjusted mortality and observed to expected mortality rates.
- The developer reports that the current mortality rate is 3.4 percent.
- The Committee noted there is evidence that supports the link between risk-adjusted mortality and the processes and structure of care.
- The Committee commented that of the 86 centers in the model's study cohort, 22 percent were outliers – 14 percent had higher than expected mortality, representing significant opportunity for improvement.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-18; M-3; L-0; I-0**; 2b. Validity: **H-13; M-8; L-0; I-0**

Rationale:

- The measure is precisely specified.

2683 Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery: Recommended

- To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities.
- Data submitted by the developer show that in the 10 percent of STS Congenital Heart Surgery Database participants subjected to audit, there was overall data completeness agreement rate of 97.68 percent and overall data accuracy agreement rate of 97.45 percent.
- To demonstrate reliability at the measure score level, an estimation of statistical reliability is assessed using a hierarchical model described in the measure submission.
- As noted above, the Committee noted that observed to expected ratios for 67 (78 percent) of the 86 programs whose data were used in developing and evaluating the model were "same as expected"; 12 (14 percent) had higher-than-expected mortality and 7 (8 percent) had lower-than-expected mortality.
- The Committee commented that detailed information regarding the construction and application of the statistical model are provided and demonstrate good validity and reliability.
- The measure is stratified by risk category; stratification details are provided.
- Exclusions are clearly delineated.
- The Committee determined that the measure has been tested using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.

3. Feasibility: H-15; M-4; L-1; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The data source for this measure is the STS Congenital Heart Surgery Database. Data elements for the measure are generated or collected during the provision of care.
- The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications.
- The developer reports that over 95 percent of programs that provide pediatric and congenital cardiac surgery in the U.S. participate in the STS database for which annual and per record fees are assessed.
- The committee was satisfied with the measure's feasibility.

4. Usability and Use: H-14; M-5; L-1; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability; 4b. Quality Improvement) and 4c.Susceptibility to inaccuracies/ unintended consequences identified)

Rationale:

- The developer reported that the measure is now in the first round of public reporting, which began in January 2015, for the 23 percent of database participants who enrolled in the STS public reporting program. It is anticipated that public reporting through Consumer Reports will follow. It is also used for quality improvement including with benchmarking.
- The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients.
- The Committee was satisfied with the measure's usability.

5. Related and Competing Measures

2683 Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery: Recommended
• Four related measures are identified. Three are STS measures. The fourth measure is 0339, a pediatric heart surgery mortality measure based on administrative data that uses a risk-adjustment classification – RACHS-1. Its companion volume measure, 0340, also uses administrative data. The developer noted that the list of eligible procedures has been mapped to both CPT and ICD-9 codes making it possible to collect the data for the measure outside the registry. The developers will be asked to continue harmonization effort as ICD-10 is implemented.
Standing Committee Recommendation for Endorsement: Y-20; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day Public and Member Comment: May 22, 2015 to June 5, 2015) • There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

2687 Hospital Visits after Hospital Outpatient Surgery: Recommended
Submission | Specifications
Description: Facility-level, post-surgical risk-standardized hospital visit ratio (RSHVR) of the predicted to expected number of all-cause, unplanned hospital visits within 7 days of a same-day surgery at a hospital outpatient department (HOPD) among Medicare fee-for-service (FFS) patients aged 65 years and older. **Numerator Statement**: The outcome is all-cause, unplanned hospital visits, defined as 1) an inpatient admission directly after the surgery or 2) an unplanned hospital visit (emergency department [ED] visit, observation stay, or unplanned inpatient admission) occurring after discharge and within 7 days of the surgical procedure. **Denominator Statement**: Outpatient same-day surgeries performed at HOPDs for Medicare FFS patients aged 65 years and older with the exception of eye surgeries and same day surgeries performed concurrently with high-risk procedures. **Exclusions**: The measure excludes surgeries for patients without continuous enrollment in Medicare FFS Parts A and B in the 1 month after the surgery. The measure excludes these patients to ensure all patients have full data available for outcome assessment. The exclusion prevents unfair distortion of performance results. The measure excludes surgeries for patients without continuous enrollment in Medicare FFS Parts A and B in the 1 month after the surgery. **Adjustment/Stratification**: No risk adjustment or risk stratification **Level of Analysis:** Facility

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Setting of Care: Other

Type of Measure: Outcome

Data Source: Administrative claims

Measure Steward: The Centers for Medicare & Medicaid Services (CMS)

STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

1. Importance to Measure and Report: The measure meets the Importance criteria

(1a. Evidence: 1b. Performance Gap)

1a. Evidence: **Y-15**; **N-3**; 1b. Performance Gap: **H-5**; **M-13**; **L-2**; **I-0**

Rationale:

- The developers provided a rationale for the measure, specifically that there are interventions and strategies that may reduce unplanned hospital visits after same-day surgery, including appropriate patient selection, patient education, and nausea and pain management. The developer clarified the difference between an unplanned and planned visit and noted that they recommend reporting the measure as a ratio rather than a rate.
- The Committee concluded there is minimal evidence that ties specific processes to the outcome but that the rationale is sufficient to support the measure.
- The developer assessed provider-level variation in performance scores using data from a 20 percent sample of 2010 Medicare fee-for-service claims that represented 4,234 HOPDs and 212,104 surgeries. The measure developers found that the high performing HOPD's (at or below the 5th percentile) had at least 24 percent fewer than expected surgical hospital visits and those in the 95th percentile had at least 34 percent more hospital visits than what they were expecting given the case and surgical procedure mix.
- Some Committee members had concerns about being able to determine if there is a performance gap given a small sample size; however, the Committee generally agreed that the evidence is sufficient.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria

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

2a. Reliability: **H-2**; **M-15**; **L-0**; **I-0**; 2b. Validity: **H-3**; **M-16**; **L-0**; **I-0**

Rationale:

- The data used in testing the reliability of the performance measure score were derived from 2009-2011 Medicare fee-for-service (FFS) claims. These data included a 20 percent sample of same-day surgery claims from Part B (physician) claims, which were then matched to the corresponding hospital claims. The developer conducted a "test-retest" approach by randomly

selecting half of the patients from each HOPD into two datasets. They then calculated the risk-standardized hospital visit ratios for each HOPD in each of the datasets, then compared the agreement between the scores for the HOPDs using the Intraclass Correlation Coefficient (ICC) The ICC value was 0.50 (95 percent CI: 0.48-0.53), indicating "moderate" agreement according to the categorization by Landis and Koch.

- Face validity of the performance measure score was assessed by a Technical Expert Panel comprised of 15 patient representatives, expert clinicians, methodologist, researchers, and providers. Of the 13 experts who responded, 92.3 percent either strongly or moderately agreed that this measure can accurately distinguish better and worse quality facilities.
- The Committee generally found the reliability and validity information submitted by the developers to be sufficient.

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

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- The data source for this measure is Medicare administrative claims and enrollment data, and therefore all data elements are in defined fields.
- The Committee was satisfied with the feasibility of this measure.

4. Usability and Use: H-6; M-11; L-1; I-0

(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)

Rationale:

- The Committee was generally satisfied with the use and usability of this measure and would like the comments that have been made to be addressed at the next cycle for the measure.

5. Related and Competing Measures

- This measure is related to 2539 Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy, Rate of risk-standardized, all-cause, unplanned hospital visits within 7 days of an outpatient colonoscopy among Medicare fee-for-service (FFS) patients aged 65 years and older.
- The Committee recommended that the need for two similar measures, as well as harmonization and unintended consequences should be assessed during annual updates once the two new measures have been in use for some time so that any potentially needed adjustments could be considered for each measure independently.

Standing Committee Recommendation for Endorsement: **Y-18**; **N-1**

6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day Public and Member Comment: May 22, 2015 to June 5, 2015)

Comments received:

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- One commenter expressed uncertainty about the feasibility of this measure, citing that a free-standing surgical center would have no mechanism to recall patients. Additionally, hospitals and ambulatory surgical centers that have urgent care facilities would be penalized for providing patient access, per the current measure language.
- Another commenter noted that CMS Planned Readmission Algorithm 3.0 was used to identify those procedures or conditions that typically result in planned admissions. The commenter noted that this algorithm has been tested for the inpatient care and has not been tested for the ambulatory care setting. The commenter further noted that outpatient surgery procedures that are planned admissions are different and unique to this setting; and questioned that by using this inpatient algorithm, that there has been a compromise in developing a comprehensive list of planned admissions for procedures performed in ambulatory surgery centers.
- Lastly, two commenters noted that NQF is currently holding a trial period under which measures may be risk-adjusted for patients' socioeconomic status and other demographic factors (SDS). The commenters suggested that SDS adjustment for measure #2687 (Hospital Visits After Outpatient Surgery) may be appropriate, and questioned why this had not been discussed or considered by the Standing Committee. Commenters also observed that a measure (#2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy) similar to measure #2687 (Hospital Visits after Hospital Outpatient Surgery) was recently endorsed by NQF's Readmissions Standing Committee, and questioned why the Surgery Standing Committee had not addressed harmonization of these two measures

NQF response:

- NQF appreciates your comment and the opportunity to provide clarification. Previous NQF policy prohibited the inclusion of sociodemographic status (SDS) factors in risk-adjustment approaches out of concern that doing so might conceal inequalities in care and result in lower standards of provider performance for certain subpopulations. However, in 2014, NQF convened a multi-stakeholder panel of experts in healthcare performance measurement and disparities to consider if, when, and how performance measures should be adjusted for SDS. After its deliberations, the Expert Panel recommended that NQF should allow inclusion of SDS factors in the risk-adjustment approach for performance measures when conceptual reasons and empirical evidence demonstrate it is appropriate. The NQF Board of Directors reviewed the Expert Panel's recommendations and decided to temporarily change NQF's policy and evaluate its impact during the course of a two-year trial period. This trial period went into effect on April 15, 2015, meaning that projects with measure submission deadlines before that date fell under NQF's previous policy/guidance on SDS adjustment, while projects with measure submission deadlines after that date are subject to the trial policy on SDS adjustment. The2015 Surgery project's measure submission deadline was January 14, 2015, prior to the start of NQF's SDS trial period. Therefore, both the developer and the Surgery Standing Committee conformed to the previous policy regarding inclusion of SDS factors in the risk-adjustment approach.

Developer response:

- Thank you for raising these two potential concerns; we would like to clarify, however, that the measure as designed does not assess either ambulatory surgery centers or free standing urgent care facilities. The measure includes outpatient same-day surgeries performed at hospital outpatient departments only; it does not include procedures performed at ambulatory surgery centers. Likewise, the measure does not affect urgent care facilities. They are not measured, and visits to urgent care facilities are not counted in the measure outcome, which only includes hospital emergency department visits, observation stays, or unplanned inpatient admissions.
- We appreciate the question and the opportunity to clarify why it makes sense to use an algorithm developed for hospital readmission measures in this measure, which as you note focuses on same-day surgery rather than admitted patients. The CMS Planned Readmission

Algorithm was developed to identify all admissions (rather than readmissions per se) that are planned. That is, it uses condition and procedure codes to distinguish between admissions to address acute illness and injury from admissions of stable patients that are for planned procedures (such as for chemotherapy or a hip replacement). We use the algorithm in this measure because our goal here is the same as it was for the hospital readmission measures – we do not want to include in our measure outcome admissions that are planned, since they are not a signal of care quality. We did review the algorithm carefully to make sure the way we identify the planned admissions makes sense in the context of this surgery measure, and shared the details of the algorithm with our technical expert panel, the public, and NQF reviewers. If you have specific suggestions for ways the algorithm should be adapted for this particular measure, we are happy to consider them.

- We appreciate your concern about the potential effects of SDS on the measure score. We wanted to address your comments on both the process of review and the substance of our conclusions in the NQF application based on the SDS analysis we conducted for the application. Regarding the process, the surgery measure is not technically in NQF's SDS pilot. "This trial period went into effect on April 15, 2015. This means that projects with measure submission deadlines before that date fell under NQF's previous policy/guidance on SDS adjustment, while projects with measure submission deadlines after that date are subject to the trial policy on SDS adjustment. Since the 2015 Surgery project's measure submission deadline was January 14, 2015, both the developer and the Surgery Standing Committee conformed to the [pre-trial] policy regarding inclusion of SDS factors in the risk-adjustment approach (email from Andrew Lyzenga at NQF, June 15, 2015)."

  Regarding the substance of your concern, consistent with the pre-trial NQF guidance on SDS, we evaluated the potential effects of risk adjusting for two SDS indicators – Medicaid-dual eligibility and race. These variable are readily available in the CMS claims data. In addition, use of Medicaid eligibility status as a proxy for SDS is consistent with prior research as well as NQF recommendations (http://www.qualityforum.org/projects/Patient_Outcome_Measures_Phases1-2.aspx). Our results show that adjusting for these factors at the patient level does little to change the measure scores; unadjusted and adjusted HOPD risk-standardized hospital visit (RSHV) ratios are highly correlated (Pearson correlation 0.990 and 0.998 for adjustment for Medicaid-dual eligibility and race, respectively). This suggests that including a patient-level risk adjuster for SDS will make little difference in the measure results after accounting for other factors already adjusted for in the model, such as age, comorbidities, and the complexity of the surgery.

  In addition, to explore whether there might be differences in HOPD RSHV ratios by the proportion of lower SDS patients hospitals care for, we examined the distribution of measure scores by quartiles of both percentage of dual-eligible patients and percentage of African American patients. Although the results show a trend toward higher measure scores in the highest quartile of lower SDS patients, they also show that some hospitals with relatively high proportions of lower SDS patients can and do perform well on the measure. We cannot tell from these analyses what is causing the observed differences across quartiles of proportion of lower SDS patients. One of the potential causes is differences related to quality. For example, some hospitals may be better able than other hospitals to meet the needs of patients with low literacy. Given these findings, on balance we do not recommend adjusting the measure for SDS at this time. Doing so will not appreciably change the measure scores and might contribute to masking disparities in care.

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CMS is participating fully in the NQF trial and is actively working to further consider issues related to adjusting for SDS. In addition, CMS notes that the Office of the Assistant Secretary for Planning and Evaluation (ASPE) is conducting research on the issue of risk adjustment for socioeconomic status as directed by the IMPACT Act and will issue a report to Congress by October 2016. CMS will closely examine the recommendations issued by ASPE and consider how they apply to this and other CMS quality measures.

CMS did consider the effect of adjusting for SDS and reported the results in the NQF application. As discussed in the application and in response to the question above, we do not recommend adjusting for SDS at this time, so testing the reliability of the measure with SDS adjustment is not necessary at this time. As you note, reliability testing yielded an intraclass correlation coefficient (ICC) of 0.50, which according to conventional interpretation is "moderate." It should be noted that this ICC value is consistent with those of other CMS claims-based measures. In addition, measure testing was conducted using a 20% sample of Medicare Fee-for-Service data. We expect the reliability score will be higher in the national 100% sample where individual facility volumes would be higher yielding more reliable individual facility results. The 100% sample would be used for public reporting.

The present measure (NQF # 2687) is already fully harmonized with NQF # 2539 (Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy) on areas of the methodology that are analogous. Specifically, both measures use the same outcome. For both the outpatient surgery measure and the outpatient colonoscopy measure, the outcome is identically specified as all-cause, unplanned hospital visits, defined as 1) an inpatient admission directly after the procedure, or 2) an unplanned hospital visit (emergency department visit, observation stay, or unplanned inpatient admission) occurring after discharge and within 7 days of the outpatient procedure.

We believe that the measure will yield important information that will help facilities improve patient care. Measure testing demonstrated significant variation in risk-standardized performance across facilities, indicating opportunities for quality improvement. Facilities with a higher than expected number of outcomes will be able to review and improve their processes around preparing the patient for surgery, the surgery itself, and follow-up care. In addition, in implementing the measure, CMS would provide each facility with patient-level data so that facilities could examine the specific causes of higher than expected outcome.

Reliability testing yielded an intraclass correlation coefficient (ICC) of 0.50, which according to conventional interpretation is "moderate." It should be noted that this ICC value is consistent with those of other CMS claims-based measures. In addition, measure testing was conducted using a 20% sample of Medicare Fee-for-Service data. We expect the reliability score will be higher in the national 100% sample where individual facility volumes would be higher yielding more reliable individual facility results. The 100% sample would be used for public reporting.

Committee Response:

- The Committee appreciates the opportunity to provide clarification regarding the setting of interest. Given the care setting to which the measure applies, the Committee believes the expressed concerns are mitigated.
- The Committee also appreciates the precision requested by the commenter as well as the clarity provided by the developer. During the in-person meeting the Committee agreed that the specifications of the measure were appropriate.

2687 Hospital Visits after Hospital Outpatient Surgery: Recommended
• Finally, the Committee appreciates the position of NQF, the participation by CMS in the SDS trial as outlined in NQF policy, and CMS commitment regarding recommendations from ASPE research. During the in-person meeting the Committee agreed that the datasets, approach to testing and testing outcome was sufficient to move the measure forward. As part of the annual update to the measure, the Committee anticipates updated information about SDS impact including any changes to the measure to increase SDS sensitivity as well as any changes required to ensure its full alignment with 2539. With respect to harmonization, the Committee agreed that it was appropriate to assess the impact and implementation of the two new measures independently before further consideration about how additional alignment might occur.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

Measures Recommended with Reserve Status

0116 Anti-platelet Medication at Discharge: Recommended with Reserve Status
Submission | Specifications
Description: Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on anti-platelet medication **Numerator Statement**: Number of patients undergoing isolated CABG who were discharged on anti-platelet medication **Denominator Statement**: All patients undergoing isolated CABG **Exclusions**: Cases are removed from the denominator if there was an in-hospital mortality or if discharge aspirin was contraindicated. **Adjustment/Stratification**: No risk adjustment or risk stratification **Level of Analysis:** Clinician: Group/Practice, Facility **Setting of Care:** Hospital/Acute Care Facility **Type of Measure**: Process **Data Source**: Electronic Clinical Data: Registry **Measure Steward**: The Society of Thoracic Surgeons
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015] **1. Importance to Measure and Report: The measure meets the Importance criteria** *(1a. Evidence: 1b. Performance Gap)* 1a. Evidence: **H-14**; **M-7**; **L-0**; **I-0**; 1b. Performance Gap: **H-1**; **M-3**; **L-17**; **I-1** Rationale: • The Committee agreed there is a consistent evidence of benefit in use of anti-platelet therapy at discharge that has been incorporated into clinical practice guidelines and that provides a clear process – outcome link. • The measure is one of 11 measures of a CABG composite score and one of 4 measures of that composite that assesses use of evidence-based perioperative medications. As such it is

0116 Anti-platelet Medication at Discharge: Recommended with Reserve Status
important in providing a picture of overall quality of perioperative care for patients undergoing CABG surgery. • High performers on this measure achieved 99.9 percent while low performers achieved 95 percent. • Committee members commented on the 4 percent gap between high and low performers noting that, while statistically meaningful, it may not be clinically meaningful thus as a stand-alone measure, it does not pass the Performance Gap sub-criterion but the Committee agreed that it should be considered for Reserve Status provided all other criteria were met.
2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria (2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity) 2a. Reliability: **H-15**; **M-6**; **L-0**; **I-0**; 2b. Validity: **H-12**; **M-7**; **L-1**; **I-0** Rationale: • The measure is precisely and completely specified. • Exclusions are appropriate and the ability to collect the data consistently has been demonstrated. • To demonstrate reliability of the measure, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities. • Data submitted by the developer show that in the 10 percent of STS Adult Cardiac Surgery Database participants subjected to an audit, there was 95.73 percent agreement between information submitted to the registry by participants and information re-abstracted by independent auditors. • To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance. • Testing results provided by the developer showed that registry participants in low, middle and high observed rates of anti-platelet medication at discharge in one time period (July 2012 – June 2013) had correspondingly low, mid, and high rates of post-operative use of anti-platelet rates in the following period (July 2013 – June 2014). • The measure is not risk adjusted. • Committee members noted that exclusions of in-hospital mortality and contraindication of discharge aspirin were appropriate. • The Committee determined that the measure has been tested at the data element level and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.
3. Feasibility: H-15; M-6; L-1; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)* Rationale: • The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care. • The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications.

0116 Anti-platelet Medication at Discharge: Recommended with Reserve Status
• The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed. • The committee was satisfied with the measure's feasibility.
4. Usability and Use: H-18; M-4; L-0; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability; 4b. Quality Improvement) and 4c.Susceptibility to inaccuracies/ unintended consequences identified)* Rationale: • The developer reports that the measure is publicly reported through the STS public reporting program and through Consumer Reports. It is also used for quality improvement including with benchmarking. • Overall rates of failure to use the medication have been steadily declining with a reported medication usage performance rate in the most recent period reported at 98.9 percent. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • This measure assesses use of perioperative anti-platelet therapy as does NQF-endorsed 0465, Perioperative Anti-platelet Therapy for Patients Undergoing Carotid Endarterectomy. The developers of both measures were asked to compare "anti-platelet therapy" as defined by their measures to identify any differences as well as opportunity for harmonization. The developer of this measure reports that its updated data collection tool that went live on July 1, 2014 captures aspirin, P2Y12 antagonists, ADP inhibitor, and other anti-platelets thus includes all medications included in 0465.
Standing Committee Recommendation for Endorsement: Y-20; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (Additional 15-day Public and Member Comment: May 22, 2015 to June 5, 2015) • There were no comments received for this measure.
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

Appendix B-NQF Member Voting Results

Measure #0115: Risk-Adjusted Surgical Re-exploration

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #0118: Anti-Lipid Treatment at Discharge

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #0120: Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR)

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%

QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #0121: Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #0122: Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement + CABG Surgery

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #0123: Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery

Measure Council	Yes	No	Abstain	Total Votes	% Approval*

Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #0130: Risk-Adjusted Deep Sternal Wound Infection Rate

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #0236: Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**

Percentage of councils approving (>60%)	100%
Average council percentage approval	100%

*equation: Yes/ (Total - Abstain)

Measure #0354: Hip Fracture Mortality Rate (IQI 19)

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	2	1	0	3	67%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	0	0	1	1	
Supplier/Industry	0	0	0	0	
All Councils	**7**	**1**	**1**	**9**	**88%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					92%

*equation: Yes/ (Total - Abstain)

Measure #0465: Perioperative Anti-Platelet Therapy for Patients Undergoing Carotid Endarterectomy

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #0533: Postoperative Respiratory Failure Rate (PSI 11)

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%

Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #0696: STS CABG Composite Score

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by 5 STAT Mortality Categories

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	1	1	0	2	50%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**8**	**1**	**0**	**9**	**89%**
Percentage of councils approving (>60%)					80%
Average council percentage approval					90%

*equation: Yes/ (Total - Abstain)

Measure #0733: Operative Mortality Stratified by the 5 STAT Mortality Categories

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	1	1	0	2	50%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**8**	**1**	**0**	**9**	**89%**
Percentage of councils approving (>60%)					80%
Average council percentage approval					90%

*equation: Yes/ (Total - Abstain)

Measure #1501: Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #1502: Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair + CABG Surgery

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%

QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #2038: Performing Vaginal Apical Suspension at the Time of Hysterectomy to Address Pelvic Organ Prolapse

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	0	0	1	1	
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	0	0	1	1	
Supplier/Industry	0	0	0	0	
All Councils	**7**	**0**	**2**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #2677: Preoperative Evaluation for Stress Urinary Incontinence Prior to Hysterectomy for Pelvic Organ Prolapse

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	0	0	1	1	
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	0	0	1	1	
Supplier/Industry	0	0	0	0	
All Councils	**7**	**0**	**2**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #2681: Perioperative Temperature Management

Measure Council	Yes	No	Abstain	Total Votes	% Approval*

Consumer	0	0	0	0	
Health Plan	0	1	0	1	0%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**8**	**1**	**0**	**9**	**89%**
Percentage of councils approving (>60%)					80%
Average council percentage approval					80%

*equation: Yes/ (Total - Abstain)

Measure #2683: Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**9**	**0**	**0**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)

Measure #2687: Hospital Visits after Hospital Outpatient Surgery

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	2	1	0	3	67%
Public/Community Health Agency	0	0	0	0	
Purchaser	2	0	0	2	100%
QMRI	0	0	1	1	
Supplier/Industry	0	0	0	0	
All Councils	**7**	**1**	**1**	**9**	**88%**
Percentage of councils approving (>60%)					100%

Average council percentage approval	92%

*equation: Yes/ (Total - Abstain)

Measure #0116: Anti-Platelet Medication at Discharge

Measure Council	Yes	No	Abstain	Total Votes	% Approval*
Consumer	0	0	0	0	
Health Plan	1	0	0	1	100%
Health Professional	2	0	0	2	100%
Provider Organizations	3	0	0	3	100%
Public/Community Health Agency	0	0	0	0	
Purchaser	1	0	1	2	100%
QMRI	1	0	0	1	100%
Supplier/Industry	0	0	0	0	
All Councils	**8**	**0**	**1**	**9**	**100%**
Percentage of councils approving (>60%)					100%
Average council percentage approval					100%

*equation: Yes/ (Total - Abstain)