NATIONAL QUALITY FORUM
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Surgery, Fall 2019 Cycle, Track 1: CDP Report

TECHNICAL REPORT: SEPTEMBER 25, 2020

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Contents

Executive Summary

In 2010, 28.6 million ambulatory surgery visits to hospitals and ambulatory surgical centers occurred, representing 48.3 million surgical and nonsurgical procedures.[1] In 2014, there were 17.2 million hospital visits that included at least one surgery.[2] Of these surgeries, over half occurred in a hospital-owned ambulatory surgical center.[2]

Quality measurement in surgery is essential both to improve outcomes for the millions of individuals undergoing surgery and surgical procedures each year and to provide information these individuals can use to make informed decisions about their care. The Surgery portfolio of measures is one of the National Quality Forum's (NQF's) largest measure portfolios. To date, the National Quality Forum (NQF) has endorsed more than 60 measures that address surgical care including care areas such as perioperative safety, general surgery, and a range of specialties including cardiac, cardiothoracic, colorectal, ocular, orthopedic, urogynecologic, and vascular surgery.

Due to circumstances around the COVID-19 global pandemic, commenting periods for all measures evaluated in the fall 2019 cycle were extended from 30 days to 60 days. Based on the comments received during this 60-day extended commenting period, measures entered one of two tracks. If the comments received required a post-comment meeting for the Committee to discuss and create a response, the measures were moved to Track 2 and deferred to the spring 2020 cycle. All of measures continued on Track 1 as part of the fall 2019 cycle.

Track 1: Measures reviewed in fall 2019 cycle: The Standing Committee evaluated one measure undergoing maintenance review against NQF's standard evaluation criteria. The Committee recommended one measure for endorsement. The Consensus Standards Approval Committee (CSAC) upheld the Committee's recommendation.

Endorsed Measure:

- **NQF 0696** STS CABG Composite Score

Track 2: Measures deferred to spring 2020 cycle:

- None of the measures in the Surgery fall 2019 cycle were deferred.

This report contains details of the evaluation of measures assigned to Track 1 and continued in the fall 2019 cycle. Brief summaries of the fall 2019 Track 1 measures are included in the body of the report; detailed summaries of the Committee's discussion and ratings of the criteria for each measure are in Appendix A.

Introduction

Given the increase in frequency and cost associated with surgeries in the United States, performance measurement and reporting provide an important opportunity to improve the safety and quality of care received by patients undergoing surgery and surgical procedures. In 2010, 28.6 million ambulatory surgery visits to hospitals and ambulatory surgical centers occurred, representing 48.3 million procedures.[1] In 2014, there were 17.2 million hospital visits that included at least one surgery.[2] Of these surgeries, over half occurred in a hospital-owned ambulatory surgical center.[2]

Ambulatory surgeries have increased over time as a result of less invasive surgical techniques; patient conveniences, such as less time spent undergoing a procedure; and lower costs.[3,4] Purchasers, payers, and patients have shown interest in shifting care to these ambulatory settings. Private payers accounted for 48.6 percent of ambulatory surgery visits, with Medicare and Medicaid covering 30.8 percent and 14.0 percent of visits, respectively.[2] However, there are risks associated with ambulatory surgeries including increased pain, longer time than anticipated to return to daily activities, and unplanned subsequent hospital visits following surgery.[5,6] Performance measurement can help provide insight into the quality of care across settings, advancing value-based purchasing and informed decision-making. With the continued growth in the outpatient surgery market, monitoring and assessing the quality of the services provided holds great importance.

NQF Portfolio of Performance Measures for Surgery Conditions

The Surgery Standing Committee (Appendix C) oversees NQF's portfolio of Surgery measures (Appendix B) that includes perioperative safety, general surgery, and a range of specialties including cardiac, cardiothoracic, colorectal, ocular, orthopedic, urogynecologic, and vascular surgery. This portfolio contains 67 measures: 12 process measures, 44 outcome and resource use measures, four structural measures, and seven composite measures (see table below).

Table 1. NQF Surgery Portfolio of Measures

	Structure	Process	Outcome/Resource Use	Composite
Abdominal and Colorectal Surgery	–	1	1	–
Anesthesia	–	–	1	–
Cardiac Surgery	3	5	17	7
General Surgery	–	–	3	–
Cross-cutting (Inpatient & Outpatient Surgery)	–	–	2	–
Cross-Cutting (Inpatient Surgery)	–	–	2	–
Cross-Cutting (Outpatient Surgery)	–	–	2	–
Ocular Surgery	–	–	5	–
Orthopedic Surgery	–	–	4	–
Thoracic Surgery	1	–	1	–
Urogynecology/Gynecology	–	4	–	–

Vascular Surgery	–	2	6	–
Total	4	12	44	7

Additional measures related to surgery have been assigned to other portfolios. These include healthcare-associated infection measures (Patient Safety), care coordination measures (Geriatrics and Palliative Care), patient experience measures (Patient Experience and Function), imaging efficiency measures (Cost and Resource Use), and a variety of condition- or procedure-specific outcome measures (Cardiovascular, Cancer, Renal, etc.).

Surgery Measure Evaluation

On February 19, 2020, the Surgery Standing Committee evaluated one measure undergoing maintenance review against NQF's standard measure evaluation criteria. One measure was assigned to Track 1 and continued in the fall 2019 cycle. No measures were assigned to Track 2.

Table 2. Surgery Measure Evaluation Summary - Track 1

	Maintenance	New	Total
Measures under consideration	1	0	1
Measures endorsed	1	0	1

NQF Member and Public Comment

Considering the recent COVID-19 global pandemic, many organizations needed to focus their attention on the public health crisis. To provide greater flexibility for stakeholders and continue the important work in quality measurement, NQF extended commenting periods and adjusted measure endorsement timelines for the fall 2019 cycle.

Commenting periods for all measures evaluated in the fall 2019 cycle were extended from 30 days to 60 days. Based on the comments received during this 60-day extended commenting period, measures entered one of two tracks:

> **Track 1: Measures Continuing in Fall 2019 Cycle**
> **Measures that did not receive public comments or only received comments in support of the Standing Committees' recommendations** moved forward to the CSAC for review and discussion during its meeting on July 28-29, 2020.
>
> **Track 2: Measures Deferred to Spring 2020 Cycle**
> **Fall 2019 measures requiring further action or discussion from a Standing Committee were deferred to the spring 2020 cycle.** This includes measures where consensus was not reached or those that require a response to public comments received. Measures undergoing maintenance review will retain endorsement during this time.

During the fall 2019 CSAC meeting on July 28-29, 2020, the CSAC reviewed all measures assigned to Track 1.

Comments Received Prior to Committee Evaluation

NQF solicits comments on endorsed measures on an ongoing basis through the Quality Positioning System (QPS). In addition, NQF solicits comments for a continuous 16-week period during each evaluation cycle via an online tool located on the project webpage. For this evaluation cycle, the commenting period opened on December 11, 2019 and closed on May 28, 2020. Pre-meeting commenting closed on January 30, 2020. As of that date, one comment was received supporting the addition of a consumer representative on the Surgery Standing Committee (Appendix F). No comments were submitted on the measures being reviewed.

Comments Received After Committee Evaluation

Considering the recent COVID-19 global pandemic, many organizations needed to focus their attention on the public health crisis. To provide greater flexibility for stakeholders and continue the important work in quality measurement, NQF extended commenting periods and adjusted measure endorsement timelines for the fall 2019 cycle.

The extended public commenting period with NQF member support closed on May 28, 2020. Following the Committee's evaluation of the measures under review, no comments were submitted.

Throughout the extended public commenting period, NQF members had the opportunity to express their support ("support" or "do not support") for each measure submitted for endorsement review to inform the Committee's recommendations. No NQF members provided their expression of support.

Summary of Measure Evaluation

The following brief summary of the measure evaluation highlights the major issues that the Committee considered. Details of the Committee's discussion and ratings of the criteria for each measure are included in Appendix A.

0696 STS CABG Composite Score (The Society of Thoracic Surgeons): Endorsed

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. All measures are based on audited clinical data collected in a prospective registry. Participants receive a score for each of the domains, plus an overall composite score. The overall composite score is created by "rolling up" the

domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). For consenting participants, scores and star ratings are publicly reported on the STS website; **Measure Type**: Composite; **Level of Analysis**: Facility, Clinician: Group/Practice; **Setting of Care**: Inpatient/Hospital; **Data Source**: Registry Data

The Standing Committee recommended this maintenance measure for continued endorsement. Measure #0696 *Society of Thoracic Surgeons* (*STS) CABG Composite Score* consists of four domains comprising 11 individual NQF-endorsed cardiac surgery measures. The Committee noted that evidence for the measure has not changed since its previous evaluation. The Committee discussed whether the measure was "topped out" with little room for improvement. Committee members noted that although the performance distribution among facilities appeared to be narrow, there was both meaningful opportunity for improvement overall and significant variability across STS participants in at least three of the four components (mortality, morbidity, and medications) within the composite measure. The Committee agreed that the data on disparities were compelling across the individual domains with increased risk for morbidity and mortality demonstrated for the female sex and the African American race. When discussing the overall quality construct of the composite, the Committee noted that the components with the heaviest weighting in the composite had the least variation, and those with the lower weighting had higher variation. The Committee wondered if this contributed to flattening out the distribution of overall performance. The developer responded by noting that the weighting scheme is supported by published consensus statements from an expert panel. In addition, the developer has found the weighting to have face validity with patient's considerations of the relative importance of the components. The Committee agreed that the measure meets NQF's criteria for composite quality construct.

The Scientific Methods Panel (SMP) evaluated the reliability and validity of this measure, rating both as moderate. The Standing Committee voted unanimously to accept the ratings of the SMP. Committee members noted that the content validity assessment demonstrated that there were significant and clinically meaningful differences in all four domains between hospitals with one- and three-star ratings. When discussing validity, Committee members questioned the face validity of star ratings to patients and whether they aligned with consumers' understanding of what constitutes a one-star or three-star facility. The measure developer clarified that the star rating was designed to evaluate surgical programs and that the definition of the star rating and meaning behind it is available to the public on the STS website. The Committee and developers discussed the challenges of converting measure scores to star ratings. It noted that the size of the confidence intervals could influence the star rating assigned. The developer acknowledged this and added that there is no perfect method for assigning star ratings but they are using a well-accepted and tested methodology. The Committee concurred.

The Committee discussed the composite construction including how the STS expert panel created the relative weighting scheme to assign the final composite score (and star ratings), and whether the composite score is meant to replace the individual four domain scores or simply be used as a summary assessment. Committee members agreed that more granular assessments should still be available to STS participants to decide where to prioritize their quality improvement efforts and to patients so they can weigh what's important to them in choosing a hospital. The Committee agreed that the component

measures fit the quality construct and that the weighting rules are in alignment with expert assessment and empirical testing.

The Committee noted that the data for this measure are collected as part of the STS Adult Cardiac Surgery database and had no major concerns regarding feasibility. When discussing the use subcriterion, the Committee expressed that additional information for consumers might be useful on the STS website. The Committee noted that other STS public reporting programs have information on the volume of patients in the program and outcomes stratified by patient complexity. The Committee had no concerns with the usability of this measure.

References

1 Hall MJ. Ambulatory Surgery Data From Hospitals and Ambulatory Surgery Centers: United States, 2010. 2017;(102):15.

2 Steiner CA, Karaca Z, Moore BJ, et al. Surgeries in Hospital-Based Ambulatory Surgery and Hospital Inpatient Settings, 2014: Statistical Brief #223. In: *Healthcare Cost and Utilization Project (HCUP) Statistical Briefs*. Rockville (MD): Agency for Healthcare Research and Quality (US); 2006. http://www.ncbi.nlm.nih.gov/books/NBK442035/. Last accessed March 2020.

3 Munnich EL, Parente ST. Procedures take less time at ambulatory surgery centers, keeping costs down and ability to meet demand up. *Health Aff (Millwood)*. 2014;33(5):764-769.

4 Accounting for the cost of US health care: A new look at why Americans spend more | McKinsey. https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/accounting-for-the-cost-of-us-health-care. Last accessed March 2020.

5 Manohar A, Cheung K, Wu CL, et al. Burden incurred by patients and their caregivers after outpatient surgery: a prospective observational study. *Clin Orthop Relat Res*. 2014;472(5):1416-1426.

6 Fox JP, Vashi AA, Ross JS, et al. Hospital-based, acute care after ambulatory surgery center discharge. *Surgery*. 2014;155(5):743-753.

Appendix A: Details of Measure Evaluation

Rating Scale: H=High; **M**=Moderate; **L**=Low; **I**=Insufficient; **NA**=Not Applicable

Track 1 – Endorsed Measures

0696 STS CABG Composite Score

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.

All measures are based on audited clinical data collected in a prospective registry. Participants receive a score for each of the domains, plus an overall composite score. The overall composite score is created by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). For consenting participants, scores and star ratings are publicly reported on the STS website.

Numerator Statement: Please see Appendix

Denominator Statement: Please see Appendix

Exclusions: Please see Appendix

Adjustment/Stratification: Statistical risk model

Level of Analysis: Facility, Clinician: Group/Practice

Setting of Care: Inpatient/Hospital

Type of Measure: Composite

Data Source: Registry Data

Measure Steward: The Society of Thoracic Surgeons

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

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

1a. Evidence: **Pass-14; No Pass-0**; 1b. Performance Gap: **H-1; M-10; L-3; I-0**; 1c. Composite: **H-5; M-9; L-0; I-0**

Rationale:

- The developer stated that the evidence has not changed since the previous review of this measure and the Committee concurred.
- This composite measure was originally endorsed in 2011 and went through a maintenance review in 2016. It includes 11 NQF-endorsed STS measures that are included in four domains representing outcomes of absence of mortality and absence of any major morbidity (defined as one of five adverse outcomes), as well as process measures for use of IMA graft and use of all evidence-based medications for which the patient is eligible (preoperative beta blockade, discharge beta blockade, discharge anti-platelet, discharge anti-lipid).
- The developer stated that the composite measure provides a more comprehensive measure of overall performance/quality than any single measure would.
- The developer provided the distribution of STS isolated CABG measure results from two consecutive time periods, July 2015-June 2016 and July 2016-June 2017, the mean composite scores for four "harvests" during those periods are 0.967 (latest), 0.967, 0.967, and 0.966. Composite score distribution within each harvest ranged from 0.919 to 0.985 (latest), 0.923 to 0.989 (spring 2017), 0.917 to 0.986 (fall 2016), and 0.912 to 0.986 (spring 2016).
- Committee members noted that although the performance distribution among facilities appeared to be narrow, there was both meaningful opportunity for improvement overall and significant variability across STS participants in at least three of the four components (mortality, morbidity, and medications) within the composite measure.
- The developer provided risk-adjusted odds ratios for race and sex for the four domains (mortality, morbidity, IMA use, and perioperative medication use).
- The Committee agreed that the data on disparities were compelling across the individual domains with increased risk for morbidity and mortality demonstrated for the female sex and the African American race.
- This composite measure comprises 11 measures that are grouped into four domains (mortality, morbidity, IMA use, perioperative medication use) with an individual score for each domain and a score for the composite resulting from rolling up the four domain scores.
    - The morbidity domain, which consists of five measures, is scored "any or none," meaning that occurrence of any one of the five adverse events determines the score.
    - The perioperative medication domain is scored "all or none," meaning all evidence-based perioperative medications included in the domain are received by each patient.
    - The remaining two domains (IMA use and mortality) each comprise a single measure, and each is scored as a proportion.
    - The domains are combined into a composite based on weights reflecting their importance: 81% of total weight applied to mortality, 10% to morbidity, 7% to IMA, and 3% to medications.
- The aggregation method for the composite is at the patient level. Overall composite performance is calculated as a weighted average of the domain-specific estimates and is reflected at the participant level.
- When discussing the overall quality construct of the composite, the Committee noted that the components with the heaviest weighting in the composite had the least variation, and those

with the lower weighting had higher variation. The Committee wondered if this contributed to flattening out the distribution of overall performance.
- The developer responded by noting that the weighting scheme is supported by published consensus statements from an expert panel. In addition, the developer has found the weighting to have face validity with patients' considerations of the relative importance of the components.
- The Committee agreed that the measure meets NQF's criteria for composite quality construct.

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2. Scientific Acceptability of Measure Properties: <u>The measure meets the Scientific Acceptability criteria</u>

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

2a. Reliability: **Yes-14; No-0**; 2b. Validity: **Yes-14; No-0**; 2c. Composite Construction: **H-6; M-8; L-0; I-0**

<u>Rationale</u>:

- This measure was deemed as complex and was evaluated by the SMP.
- For the reliability testing, the developer presented analysis of performance-level signal-to-noise ratio (SNR) with a Bayesian approach to calculating the true probability. The SNR was 0.68 with considerable spread.
- The SMP agreed the methodology of the testing provided was strong and appropriate. The Panel had some concerns about the age of the data in the testing (2013-2014) but noted that updating reliability data is not required under NQF's evaluation criteria.
- The SMP's ratings for reliability: H-0; M-6; L-1; I-0.
- The Committee had no concerns regarding the reliability of the measure and voted unanimously to accept the SMP rating.
- The developer stated that the near-universal acceptance of the measure demonstrates face validity.
- The developer tested empirical/predictive validity by examining the stability of the measure across different time periods.
- The developer tested content validity by examining the relationship between the composite and its individual domains.
- The SMP had concerns about the testing:
    - The age of the data used in the testing and whether changes in data over time would result in different validity assessments
    - Why the developer did not conduct construct validity testing using a separate comparison measure (as opposed to components of the composite)
    - Whether comparing scores from two different time periods was a predictive validity test or merely a reflection of the stability of the measure and performance on the measure.
- In response to the concerns raised, the developer provided additional information regarding the lack of external metrics for validity testing, an updated risk model calibration, and updated validity data. The SMP discussed the updated information and the NQF criteria and found the measure passed validity with a moderate rating.
- The SMP's ratings for validity: H-2; M-4; L-0; I-0.
- Committee members noted that the content validity assessment demonstrated that there were significant and clinically meaningful differences in all four domains between hospitals with one- and three-star ratings.

- When discussing validity, Committee members questioned the face validity of star ratings to patients and whether they aligned with consumers' understanding of what constitutes a one-star or three-star facility.
- The measure developer clarified that the star rating was designed to evaluate surgical programs, and that the definition of the star rating and meaning behind it is available to the public on the STS website.
- The Committee and the developer discussed the challenges of converting measure scores to star ratings. The Committee noted that the size of the confidence intervals could influence the star rating assigned. The developer acknowledged this and added that while there is no perfect method for assigning star ratings, the methodology used in this composite is a well-accepted and tested methodology. The Committee concurred with this.
- The Committee voted unanimously to accept the SMP rating for validity.
- The Committee discussed the composite construction, including how the STS expert panel created the relative weighting scheme to assign the final composite score (and star ratings), and whether the composite score is meant to replace the individual four domain scores or simply be used as a summary assessment.
- Committee members agreed that more granular assessments should still be available to STS participants to decide where to prioritize their quality improvement efforts—and to patients so they can weigh what's important to them in choosing a hospital.
- The Committee agreed that the component measures fit the quality construct and that the weighting rules are in alignment with expert assessment and empirical testing.

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3. Feasibility: **H-10; 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 the STS Adult Cardiac Surgery database, which has more than 1,000 participants. Data are collected or generated and used by healthcare personnel during provision of care. Some institutions have full electronic health record capability; some may have partial or no availability. Some data elements are in defined fields in electronic sources and some must be abstracted. However, all data from participating institutions are submitted in electronic format following standard data specifications.
- The Committee had no concerns with the feasibility of this measure.

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4. Use and Usability

(4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)

4a. Use: **Pass-13; No Pass-0**; 4b. Usability*:* **H-4; M-9; L-0; I-0**

Rationale:

- This measure is not currently in use in an accountability program, but the composite is publicly reported through the STS Adult Cardiac Surgery website.
- When discussing the use subcriterion, the Committee expressed that additional information for consumers might be useful on the STS website. The Committee noted that other STS public

reporting programs have information on the volume of patients in the program and outcomes stratified by patient complexity.
- The Committee had no concerns with the usability of this measure.

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5. Related and Competing Measures

This measure has multiple related measures. For ease of comparison, these measures are separated into two groups, depending on the commonalities shared with #0696. The first group of measures have the same measure focus as #0696, but different target populations:

- 2561 STS Aortic Valve Replacement (AVR) Composite Score
- 2563 STS Aortic Valve Replacement (AVR) + CABG Composite Score
- 3031 Mitral Valve Repair/Replacement (MVRR) Composite Score
- 3032 Mitral Valve Repair/Replacement (MVRR) + CABG Composite Score

The developer noted that it is currently working on an overall composite that would include all of these target populations; however, they stated there is still a need for procedure-specific measures as well. The Committee wondered if splitting the measures into different procedures affects the ability to make meaningful quality observations. The developer noted this is handled by adjusting the measurement period so that each measure has enough patients included to calculate meaningful results. The developer and Committee agreed that it is important to have multiple ways of assessing and viewing quality, and that quality may vary by type of operation. Both agreed this is important information for providers and patients. The Committee raised the question of burden related to multiple measures, and the developer noted that providers that participate in the registry must enter all relevant cases so the information needed for the measures is captured regardless of measure calculation. The Committee was satisfied there was a justification for the related measures and that burden was minimized.

The second group of measures have the same target population as #0696, but different foci:

- 0114 Risk-Adjusted Postoperative Renal Failure
- 0115 Risk-Adjusted Surgical Re-exploration
- 0116 Anti-Platelet Medication at Discharge
- 0117 Beta Blockade at Discharge
- 0118 Anti-Lipid Treatment Discharge
- 0119 Risk-Adjusted Operative Mortality for CABG
- 0127 Preoperative Beta Blockade
- 0129 Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)
- 0130 Risk-Adjusted Deep Sternal Wound Infection
- 0131 Risk-Adjusted Stroke/Cerebrovascular Accident
- 0134 Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

These 11 measures represent the component measures for the #0696 composite. In a brief conversation, the Committee noted that the components are necessary to calculate the composite and that the data are already gathered through registry participation. The Committee further noted that if the components were not separately endorsed, each component would need to be reviewed as part of the composite review. The Committee was satisfied there was a justification for the related measures and that burden was minimized.

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6. Standing Committee Recommendation for Endorsement: Yes-13; No-0

7. Public and Member Comment

- No public and member comments were received for this measure.

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8. CSAC Vote: Y-11; N-0 (July 28-29, 2020: Approved for continued endorsement)

9. Appeals

- No appeals were received.

Appendix B: Surgery Portfolio—Use in Federal Programs[1]

NQF #	Title	Federal Programs: Finalized or Implemented as of July 19, 2020
0114	Risk-Adjusted Postoperative Renal Failure	Merit-Based Incentive Payment System (MIPS) Program
0115	Risk-Adjusted Surgical Re-exploration	MIPS Program
0119	Risk-Adjusted Operative Mortality for CABG	MIPS Program
0129	Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	MIPS Program
0130	Risk-Adjusted Deep Sternal Wound Infection	MIPS Program
0236	Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery	MIPS Program
0465	Perioperative Anti-platelet Therapy for Patients undergoing Carotid Endarterectomy	MIPS Program
0564/0564e	Cataracts: Complications within 30 Days Following Cataract Surgery Requiring Additional Surgical Procedures	MIPS Program
0565/0565e	Cataracts: 20/40 or Better Visual Acuity within 90 Days Following Cataract Surgery	MIPS Program; Medicaid Promoting Interoperability Program for Eligible Professionals
0733	Operative Mortality Stratified by the 5 STAT Mortality Categories	MIPS Program
1523	Rate of Open Repair of Abdominal Aortic Aneurysms (AAA) Where Patients Are Discharged Alive	MIPS Program
1534	In-hospital mortality following elective EVAR of AAAs	MIPS Program
1540	Postoperative Stroke or Death in Asymptomatic Patients undergoing Carotid Endarterectomy	MIPS Program
1543	Postoperative Stroke or Death in Asymptomatic Patients undergoing Carotid Artery Stenting (CAS)	MIPS Program

[1] Per CMS Measures Inventory Tool as of 07/19/2020

NQF #	Title	Federal Programs: Finalized or Implemented as of July 19, 2020
1550	Hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)	Hospital Compare, Hospital Inpatient Quality Reporting, Hospital Value-Based Purchasing
1551	Hospital-level 30-day, all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)	Hospital Compare, Hospital Inpatient Quality Reporting, Hospital Readmissions Reduction Program
2063	Performing cystoscopy at the time of hysterectomy for pelvic organ prolapse to detect lower urinary tract injury	MIPS Program
2558	Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Coronary Artery Bypass Graft (CABG) Surgery	Hospital Compare, Hospital Inpatient Quality Reporting, Hospital Value-Based Purchasing
2681	Perioperative Temperature Management	MIPS Program
2687	Hospital Visits after Hospital Outpatient Surgery	Hospital Outpatient Quality Reporting

Appendix C: Surgery Standing Committee and NQF Staff

STANDING COMMITTEE

Lee Fleisher, MD (Co-Chair) (Committee appointment ended July 1, 2020)
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Appendix D: Measure Specifications

0696 STS CABG Composite Score

STEWARD

The Society of Thoracic Surgeons

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.

All measures are based on audited clinical data collected in a prospective registry. Participants receive a score for each of the domains, plus an overall composite score. The overall composite score is created by “rolling up” the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). For consenting participants, scores and star ratings are publicly reported on the STS website.

TYPE

Composite

DATA SOURCE

Registry Data STS Adult Cardiac Surgery Database – Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014; STS Adult Cardiac Surgery Database Version 2.9 went live on July 1, 2017.

LEVEL

Facility, Clinician : Group/Practice

SETTING

Inpatient/Hospital

NUMERATOR STATEMENT

Please see Appendix

NUMERATOR DETAILS

Please see Appendix

DENOMINATOR STATEMENT

Please see Appendix

DENOMINATOR DETAILS

Please see Appendix

EXCLUSIONS

Please see Appendix

EXCLUSION DETAILS

Please see Appendix

RISK ADJUSTMENT

Statistical risk model

STRATIFICATION

N/A

TYPE SCORE

Rate/proportion better quality = higher score

ALGORITHM

Please see discussion under section S.4 (Appendix) and attached articles

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N/A

Appendix E1: Related and Competing Endorsed Measures (Tabular Format)

Comparison of NQF 0696, 0114, 0115, 0116, 0117, 0118, 0119, 0127, 0129, 0130, 0131, and 0134

	0696: STS CABG Composite Score	0114: Risk-Adjusted Postoperative Renal Failure	0115: Risk-Adjusted Surgical Re-exploration	0116: Anti-Platelet Medication at Discharge	0117: Beta Blockade at Discharge	0118: Anti-Lipid Treatment Discharge
Steward	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons
Description	The STS CABG Composite Score comprises four domains consisting of 11 individually NQF-endorsed cardiac surgery measures:	Percent of patients aged 18 years and older undergoing isolated CABG (without pre-existing renal failure) who develop postoperative renal failure or require dialysis	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	Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on anti-platelet medication	Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on beta blockers	Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on a lipid lowering statin
Type	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	Outcome	Outcome	Process	Process	Process

	0696: STS CABG Composite Score	0114: Risk-Adjusted Postoperative Renal Failure	0115: Risk-Adjusted Surgical Re-exploration	0116: Anti-Platelet Medication at Discharge	0117: Beta Blockade at Discharge	0118: Anti-Lipid Treatment Discharge
	hospitalization as surgery or after discharge but within 30 days of the procedure;					
Data Source	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;	Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)	Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)	Facility, Clinician : Group/Practice Hospital	Registry Data STS Adult Cardiac Surgery Database Version 2.81	Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)
Level	Domain 3) Use of Internal Mammary Artery (IMA) – Proportion of first-time CABG patients	Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Spe	Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Spe	No data dictionary	Available at measure-specific web page URL identified in S.1 No data dictionary	Available at measure-specific web page URL identified in S.1 No data dictionary

	0696: STS CABG Composite Score	0114: Risk-Adjusted Postoperative Renal Failure	0115: Risk-Adjusted Surgical Re-exploration	0116: Anti-Platelet Medication at Discharge	0117: Beta Blockade at Discharge	0118: Anti-Lipid Treatment Discharge
	who receive at least one IMA graft;	G_Risk_Model_Specifications.docx	cifications-636220002799399548.docx			
Setting	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.	Facility, Clinician : Group/Practice	Facility, Clinician : Group/Practice	N/A	Facility, Clinician : Group/Practice	Facility, Clinician : Group/Practice
Numerator Statement	All measures are based on audited clinical data collected in a prospective registry. Participants receive a score for each of	Inpatient/Hospital	Inpatient/Hospital	1a._Evidence_-_0116_Anti-Platelet_Medication_at_Discharge-635570025715849891.docx	Inpatient/Hospital	Inpatient/Hospital

	0696: STS CABG Composite Score	0114: Risk-Adjusted Postoperative Renal Failure	0115: Risk-Adjusted Surgical Re-exploration	0116: Anti-Platelet Medication at Discharge	0117: Beta Blockade at Discharge	0118: Anti-Lipid Treatment Discharge
	the domains, plus an overall composite score. The overall composite score is created by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). For consenting participants, scores and star ratings are publicly reported on the STS website.					
Numerator Details	Composite	Number of patients undergoing isolated CABG who develop postoperative renal failure or require dialysis	Number of patients undergoing isolated CABG who require a re-intervention during the current hospitalization for mediastinal bleeding with or	Number of isolated CABG procedures excluding cases with in-hospital mortality or cases for which discharge aspirin use was contraindicated.	Number of patients undergoing isolated CABG who were discharged on beta blockers	Number of patients undergoing isolated CABG who were discharged on a lipid lowering statin

	0696: STS CABG Composite Score	0114: Risk-Adjusted Postoperative Renal Failure	0115: Risk-Adjusted Surgical Re-exploration	0116: Anti-Platelet Medication at Discharge	0117: Beta Blockade at Discharge	0118: Anti-Lipid Treatment Discharge
			without tamponade, graft occlusion, valve dysfunction, or other cardiac reason	The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.		
Denominator Statement	Registry Data STS Adult Cardiac Surgery Database – Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014; STS Adult Cardiac Surgery Database Version 2.9 went live on July 1, 2017.	Definition of renal failure/dialysis requirement – Patients with acute renal failure or worsening renal function resulting in one or both of the following:	Number of isolated CABG procedures in which any of the following are marked "yes" –	Cases are removed from the denominator if there was an in-hospital mortality or if discharge aspirin was contraindicated.	Number of isolated CABG procedures in which discharge beta blockers [DCBeta (STS Adult Cardiac Surgery Database Version 2.81)] is marked "yes"	Number of isolated CABG procedures in which discharge lipid lowering medication [DCLipid (STS Adult Cardiac Surgery Database Version 2.73)] is marked "yes" and lipid lowering discharge medication type [DCLipMT (STS Adult Cardiac Surgery Database Version 2.73)] is marked "statin"
Denominator Details	Available at measure-specific web page URL identified in S.1 Attachment ACSD_DataSpecificationsV2_9.pdf	-	ReOp for Bleeding [COpReBld (STS Adult Cardiac Surgery Database Version 2.73)], Reintervention for Graft Occlusion (COpReGft), ReOp for Valve Dysfunction (COpReVlv), ReOp	Mortality Discharge Status (MtDCStat), Mortality Date (MtDate), and Discharge Date (DischDt) indicate an in-hospital mortality; discharge aspirin (DCASA) is marked	Patients undergoing isolated CABG	All patients undergoing isolated CABG

	0696: STS CABG Composite Score	0114: Risk-Adjusted Postoperative Renal Failure	0115: Risk-Adjusted Surgical Re-exploration	0116: Anti-Platelet Medication at Discharge	0117: Beta Blockade at Discharge	0118: Anti-Lipid Treatment Discharge
			for Other Cardiac Reason (COpReOth)	as "Contraindicated"		
Exclusions	Facility, Clinician : Group/Practice	-	All patients undergoing isolated CABG	N/A	Number of isolated CABG procedures excluding cases with an in-hospital mortality or cases for which discharge beta blocker use was contraindicated. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.	Number of isolated CABG procedures excluding cases with an in-hospital mortality or cases for which discharge anti-lipid treatment use was contraindicated. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.
Exclusion Details	Inpatient/Hospital	Number of isolated CABG procedures in which postoperative renal failure [CRenFail (STS Adult Cardiac Surgery Database Version 2.9)] is marked as "yes"	Number of isolated CABG procedures. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.	No risk adjustment or risk stratification	Cases are removed from the denominator if there was an in-hospital mortality or if discharge beta blocker was contraindicated.	Cases are removed from the denominator if there was an in-hospital mortality or if discharge anti-lipid treatment was contraindicated.
Risk Adjustment	Please see Appendix	All patients undergoing isolated CABG	N/A		Mortality Discharge Status (MtDCStat), Mortality Date (MtDate), and Discharge Date (DischDt) indicate an in-hospital	Mortality Discharge Status (MtDCStat), Mortality Date (MtDate), and Discharge Date (DischDt) indicate an in-hospital

	0696: STS CABG Composite Score	0114: Risk-Adjusted Postoperative Renal Failure	0115: Risk-Adjusted Surgical Re-exploration	0116: Anti-Platelet Medication at Discharge	0117: Beta Blockade at Discharge	0118: Anti-Lipid Treatment Discharge
					mortality; discharge beta blocker (DCBeta) marked as "Contraindicated"	mortality; DCLipid is marked as "Contraindicated"
Stratification	Please see Appendix	Number of isolated CABG procedures including re-operations; the SQL code used to create the function to identify cardiac procedures is provided in the appendix.	N/A	better quality = higher score	No risk adjustment or risk stratification	No risk adjustment or risk stratification
Type Score	Please see Appendix	Patients with documented history of renal failure, baseline serum creatinine of 4.0 or higher; prior renal transplants are not considered preoperative renal failure unless since transplantation their Cr has been or is 4.0 or higher	Statistical risk model			
Algorithm	Please see Appendix	(Dialysis) is marked yes; Last Creatinine Level (CreatLst) is 4.0 or higher				

	0696: STS CABG Composite Score	0114: Risk-Adjusted Postoperative Renal Failure	0115: Risk-Adjusted Surgical Re-exploration	0116: Anti-Platelet Medication at Discharge	0117: Beta Blockade at Discharge	0118: Anti-Lipid Treatment Discharge
Submission items	Please see Appendix	Statistical risk model	0115: Risk-Adjusted Surgical Re-exploration	Rate/proportion	N/A	N/A

Comparison of NQF 0696, 0114, 0115, 0116, 0117, 0118, 0119, 0127, 0129, 0130, 0131, and 0134 continued…

	0696: STS CABG Composite Score	0119: Risk-Adjusted Operative Mortality for CABG	0127: Preoperative Beta Blockade	0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	0130: Risk-Adjusted Deep Sternal Wound Infection	0131: Risk-Adjusted Stroke/Cerebrovascular Accident	0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)
Steward	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons
Description	The STS CABG Composite Score comprises four domains consisting of 11 individually NQF-endorsed cardiac surgery measures:	Percent of patients aged 18 years and older undergoing isolated CABG who die, including both 1) all deaths occurring during the hospitalization in which the CABG was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure	Percent of patients aged 18 years and older undergoing isolated CABG who received beta blockers within 24 hours preceding surgery.	Percent of patients aged 18 years and older undergoing isolated CABG who require intubation for more than 24 hours postoperatively	Percent of patients aged 18 years and older undergoing isolated CABG for whom mediastinitis or deep sternal wound infection is diagnosed within 30 days postoperatively or at any time during the hospitalization for surgery	Percent of patients aged 18 years and older undergoing isolated CABG who have a postoperative stroke (i.e., any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that did not resolve within 24 hours	Percentage of patients aged 18 years and older undergoing isolated coronary artery bypass graft (CABG) who received an internal mammary artery (IMA) graft
Type	Domain 1) Absence of Operative Mortality – Proportion of	Outcome	Process	Outcome	Outcome	Outcome	Process

	0696: STS CABG Composite Score	0119: Risk-Adjusted Operative Mortality for CABG	0127: Preoperative Beta Blockade	0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	0130: Risk-Adjusted Deep Sternal Wound Infection	0131: Risk-Adjusted Stroke/Cerebrovascular Accident	0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)
	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;						
Data Source	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	Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)	Registry Data STS Adult Cardiac Surgery Database Version 2.81	Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)	Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)	Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)	Registry Data STS Adult Cardiac Surgery Database Version 2.81

	0696: STS CABG Composite Score	0119: Risk-Adjusted Operative Mortality for CABG	0127: Preoperative Beta Blockade	0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	0130: Risk-Adjusted Deep Sternal Wound Infection	0131: Risk-Adjusted Stroke/Cerebrovascular Accident	0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)
	outcomes: 1. reoperations for any cardiac reason, 2. renal failure, 3. deep sternal wound infection, 4. prolonged ventilation/intubation, 5. cerebrovascular accident/permanent stroke;						
Level	Domain 3) Use of Internal Mammary Artery (IMA) – Proportion of first-time CABG patients who receive at least one IMA graft;	Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Specifications-635307506255634552.doc	Available at measure-specific web page URL identified in S.1 No data dictionary	Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Specifications.doc	Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Specifications-635570255313893234-636220007682323593-636511009556464790.docx	Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Specifications-635307594428525960.docx	Available at measure-specific web page URL identified in S.1 No data dictionary
Setting	Domain 4) Use of All Evidence-based Perioperative	Facility, Clinician : Group/Practice	Facility, Clinician : Group/Practice	Facility, Clinician : Group/Practice	Facility, Clinician : Group/Practice	Facility, Clinician : Group/Practice	Facility, Clinician : Group/Practice

	0696: STS CABG Composite Score	0119: Risk-Adjusted Operative Mortality for CABG	0127: Preoperative Beta Blockade	0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	0130: Risk-Adjusted Deep Sternal Wound Infection	0131: Risk-Adjusted Stroke/Cerebrovascular Accident	0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)
	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.						
Numerator Statement	All measures are based on audited clinical data collected in a prospective registry. Participants receive a score	Inpatient/Hospital	Inpatient/Hospital	Inpatient/Hospital	Inpatient/Hospital	Inpatient/Hospital	Inpatient/Hospital

	0696: STS CABG Composite Score	0119: Risk-Adjusted Operative Mortality for CABG	0127: Preoperative Beta Blockade	0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	0130: Risk-Adjusted Deep Sternal Wound Infection	0131: Risk-Adjusted Stroke/Cerebrovascular Accident	0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)
	for each of the domains, plus an overall composite score. The overall composite score is created by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). For consenting participants, scores and star ratings are						

	0696: STS CABG Composite Score	0119: Risk-Adjusted Operative Mortality for CABG	0127: Preoperative Beta Blockade	0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	0130: Risk-Adjusted Deep Sternal Wound Infection	0131: Risk-Adjusted Stroke/Cerebrovascular Accident	0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)
	publicly reported on the STS website.						
Numerator Details	Composite	Number of patients undergoing isolated 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	Number of patients undergoing isolated CABG who received beta blockers within 24 hours preceding surgery	Number of patients undergoing isolated CABG who require intubation > 24 hours following exit from the operating room	Number of patients aged 18 years and older undergoing isolated CABG for whom mediastinitis or deep sternal wound infection is diagnosed within 30 days postoperatively or at any time during the hospitalization for surgery	Number of patients undergoing isolated CABG who have a postoperative stroke (i.e., any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that did not resolve within 24 hours	Number of patients undergoing isolated coronary artery bypass graft (CABG) who received an internal mammary artery (IMA) graft
Denominator Statement	Registry Data STS Adult Cardiac Surgery Database – Version 2.73; STS Adult Cardiac Surgery	Number of isolated CABG procedures with an operative mortality;	Number of isolated CABG procedures in which preoperative beta blockers [MedBeta (STS	Number of isolated CABG procedures in which Prolonged Ventilation (CPVntLng) is marked "yes"	Numerator time period:	Number of isolated CABG procedures in which postoperative stroke [CNStrokP (STS Adult	Number of isolated CABG procedures in which IMA Artery Used [IMAArtUs (STS Adult Cardiac

	0696: STS CABG Composite Score	0119: Risk-Adjusted Operative Mortality for CABG	0127: Preoperative Beta Blockade	0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	0130: Risk-Adjusted Deep Sternal Wound Infection	0131: Risk-Adjusted Stroke/Cerebrovascular Accident	0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)
	Database Version 2.8 went live on July 1, 2014; STS Adult Cardiac Surgery Database Version 2.9 went live on July 1, 2017.		Adult Cardiac Surgery Database Version 2.81)] is marked "yes"	(STS Adult Cardiac Surgery Database Version 2.9)		Cardiac Surgery Database Version 2.9)] is marked "yes"	Surgery Database Version 2.81] is marked "Left IMA," "Right IMA," or "Both IMAs"
Denominator Details	Available at measure-specific web page URL identified in S.1 Attachment ACSD_DataSpecificationsV2_9.pdf	Number of isolated CABG procedures in which Mortality [Mortalty (STS Adult Cardiac Surgery Database Version 2.9)] and Mortality Operative Death (MtOpD) are marked “yes.” Operative mortality is further verified by the following variables: Mortality Status at 30 days (Mt30Stat), Mortality Date	Patients undergoing isolated CABG	The hours of postoperative ventilation time include OR exit until extubation, plus any additional hours following reintubation.	Within 30 days postoperatively or at any time during the hospitalization for surgery	All patients undergoing isolated CABG	Patients undergoing isolated CABG

	0696: STS CABG Composite Score	0119: Risk-Adjusted Operative Mortality for CABG	0127: Preoperative Beta Blockade	0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	0130: Risk-Adjusted Deep Sternal Wound Infection	0131: Risk-Adjusted Stroke/Cerebrovascular Accident	0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)
		(MtDate), Mortality Discharge Status (MtDCStat)					
Exclusions	Facility, Clinician : Group/Practice	All patients undergoing isolated CABG	Number of isolated CABG procedures excluding cases for which preoperative beta blockers were contraindicated or if the clinical status of the patient was emergent or emergent salvage prior to entering the operating room. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.	All patients undergoing isolated CABG	Number of isolated CABG procedures in which deep sternal infection/mediastinitis [DeepSternInf (STS Adult Cardiac Surgery Database Version 2.9)] is marked "yes"	Number of isolated CABG procedures. The SQL code used to create the function to identify cardiac procedures is provided in the appendix.	Number of isolated CABG procedures excluding cases that were a previous CABG prior to the current admission or if IMA was not used and one of the acceptable reasons was provided. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.

	0696: STS CABG Composite Score	0119: Risk-Adjusted Operative Mortality for CABG	0127: Preoperative Beta Blockade	0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	0130: Risk-Adjusted Deep Sternal Wound Infection	0131: Risk-Adjusted Stroke/Cerebrovascular Accident	0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)
Exclusion Details	Inpatient/Hospital	Number of isolated CABG procedures. The SQL code used to create the function to identify cardiac procedures is provided in the appendix.	Cases are removed from the denominator if preoperative beta blocker was contraindicated or if the clinical status of the patient was emergent or emergent salvage prior to entering the operating room.	Number of isolated CABG procedures. The SQL code used to create the function to identify cardiac procedures is provided in the appendix.	DeepSternInf	N/A	Cases are removed from the denominator if the patient had a previous CABG prior to the current admission or if IMA was not used and one of the following reasons was provided:
Risk Adjustment	Please see Appendix	N/A	Procedures with preoperative beta blockers [MedBeta (STS Adult Cardiac Surgery Database Version 2.81)] marked as "Contraindicated " or procedures with Status [Status(STS Adult Cardiac Surgery Database Version 2.81)]	N/A	Deep incisional SSI: Must meet the following criteria	N/A	-

	0696: STS CABG Composite Score	0119: Risk-Adjusted Operative Mortality for CABG	0127: Preoperative Beta Blockade	0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	0130: Risk-Adjusted Deep Sternal Wound Infection	0131: Risk-Adjusted Stroke/Cerebrovascular Accident	0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)
			marked "Emergent" or "Emergent Salvage"				
Stratification	Please see Appendix	N/A	No risk adjustment or risk stratification	N/A	- Infection occurs within 30 days after the operative procedure, and involves deep soft tissues of the incision (e.g., fascial and muscle layers) and patient has at least one of the following:	Statistical risk model	-
Type Score	Please see Appendix	Statistical risk model		Statistical risk model	- Purulent drainage from the deep incision.		-
Algorithm	Please see Appendix				- A deep incision that spontaneously dehisces or is deliberately opened by a surgeon, attending physician or		Patients with previous CABG, identified where PrCAB is marked "yes"

	0696: STS CABG Composite Score	0119: Risk-Adjusted Operative Mortality for CABG	0127: Preoperative Beta Blockade	0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	0130: Risk-Adjusted Deep Sternal Wound Infection	0131: Risk-Adjusted Stroke/Cerebrovascular Accident	0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)
					other designee and is culture-positive or not cultured, and patient has at least one of the following signs or symptoms:		
Submission items	Please see Appendix		N/A	0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	- Fever (>38°C)	N/A	or

Comparison of NQF 0696, 2561, 2563, 3031, and 3032

	0696: STS CABG Composite Score	2561: STS Aortic Valve Replacement (AVR) Composite Score	2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score	3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score	3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score
Steward	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons	The Society of Thoracic Surgeons
Description	The STS CABG Composite Score comprises four domains consisting of 11 individually NQF-endorsed cardiac surgery measures:	STS AVR Composite Score comprises two domains consisting of six 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; and 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	The STS AVR+CABG Composite Score comprises two domains consisting of six 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; and 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	The STS Mitral Valve Repair/Replacement (MVRR) Composite Score measures surgical performance for isolated MVRR with or without concomitant tricuspid valve repair (TVr), surgical ablation for atrial fibrillation (AF), or repair of atrial septal defect (ASD). To assess overall quality, the STS MVRR Composite Score comprises two domains consisting of six measures:	The STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score measures surgical performance for MVRR + CABG with or without concomitant Atrial Septal Defect (ASD) and Patient Foramen Ovale (PFO) closures, tricuspid valve repair (TVr), or surgical ablation for atrial fibrillation (AF). To assess overall quality, the STS MVRR +CABG Composite Score comprises two domains consisting of six measures:

		cardiac reason, 2. renal failure, 3. deep sternal wound infection, 4. prolonged ventilation/intubation, and 5. cerebrovascular accident/permanent stroke. All measures are based on audited clinical data collected in a prospective registry and are risk-adjusted.	cardiac reason, 2. renal failure, 3. deep sternal wound infection, 4. prolonged ventilation/intubation, and 5. cerebrovascular accident/permanent stroke. All measures are based on audited clinical data collected in a prospective registry and are risk-adjusted.		
Type	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;	Participants receive a score for each of the two domains, plus an overall composite score. The overall composite score was created by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). Star ratings are publicly reported on the STS website and are also currently reported on	Participants receive a score for each of the two domains, plus an overall composite score. The overall composite score was created by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). Star ratings are publicly reported on the STS website.	Domain 1 – Absence of Operative Mortality	Domain 1 – Absence of Operative Mortality

		the Consumer Reports website.			
Data Source	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;	Composite	Composite	Proportion of patients (risk-adjusted) who do not experience operative mortality. Operative mortality is defined as death before hospital discharge or within 30 days of the operation.	Proportion of patients (risk-adjusted) who do not experience operative mortality. Operative mortality is defined as death before hospital discharge or within 30 days of the operation.
Level	Domain 3) Use of Internal Mammary Artery (IMA) – Proportion of first-time CABG patients who receive at least one IMA graft;	Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)	Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)	Domain 2 – Absence of Major Morbidity	Domain 2 – Absence of Major Morbidity
Setting	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	Available at measure-specific web page URL identified in S.1 Attachment S.2b._-_S.15._Detailed_Risk_Model_Specifications.STS_AVR_Composite_Score.docx	Available at measure-specific web page URL identified in S.1 Attachment S.2b._-_S.15._Detailed_Risk_Model_Specifications.STS_AVR-CABG_Composite_Score.docx	Proportion of patients (risk-adjusted) who do not experience any major morbidity. Major morbidity is defined as the occurrence of any one or more of the following major complications:	Proportion of patients (risk-adjusted) who do not experience any major morbidity. Major morbidity is defined as the occurrence of any one or more of the following major complications:

	medications are: 1. preoperative beta blockade therapy, 2. discharge anti-platelet medication, 3. discharge beta blockade therapy, and 4. discharge anti-lipid medication.				
Numerator Statement	All measures are based on audited clinical data collected in a prospective registry. Participants receive a score for each of the domains, plus an overall composite score. The overall composite score is created by “rolling up” the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). For consenting participants, scores and star ratings are publicly reported on the STS website.	Facility, Clinician : Group/Practice	Facility, Clinician : Group/Practice	1.	1.

Numerator Details	Composite	Inpatient/Hospital	Inpatient/Hospital	2.	2.
Denominator Statement	Registry Data STS Adult Cardiac Surgery Database – Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014; STS Adult Cardiac Surgery Database Version 2.9 went live on July 1, 2017.	Due to the complex methodology used to construct the composite measure, it is impractical to separately discuss the numerator and denominator. The following discussion describes how each domain score is calculated and how these are combined into an overall composite score.	Due to the complex methodology used to construct the composite measure, it is impractical to separately discuss the numerator and denominator. The following discussion describes how each domain score is calculated and how these are combined into an overall composite score.	3.	3.
Denominator Details	Available at measure-specific web page URL identified in S.1 Attachment ACSD_DataSpecificationsV2_9.pdf	The STS AVR Composite Score comprises two domains consisting of six individual measures:	The STS AVR+CABG Composite Score comprises two domains consisting of six individual measures:	4.	4.
Exclusions	Facility, Clinician : Group/Practice	1. Absence of Operative Mortality	1. Absence of Operative Mortality	5.	5.
Exclusion Details	Inpatient/Hospital	NQF # 0120 Risk-Adjusted Operative Mortality for AVR	NQF # 0123 Risk-Adjusted Operative Mortality for AVR+CABG Surgery	Outcome data are collected on all patients and from all participants. For optimal measure reliability, participants meeting a volume threshold of at least 36 cases over 3 years (i.e., approximately one mitral case per month) receive a score for each of the two domains,	Outcome data are collected on all patients and from all participants. For optimal measure reliability, participants meeting a volume threshold of at least 25 cases over 3 years receive a score for each of the two domains, plus an overall composite score. The

				plus an overall composite score. The overall composite score is created by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by the following:	overall composite score is created by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by the following:
Risk Adjustment	Please see Appendix	2. Absence of Major Morbidity, scored any-or-none. The measures used are the same morbidity outcomes included in NQF #0696 STS CABG Composite Score.	2. Absence of Major Morbidity, scored any-or-none. The measures used are the same morbidity outcomes included in NQF #0696 STS CABG Composite Score.	1 star – lower-than-expected performance	1 star – lower-than-expected performance
Stratification	Please see Appendix	Risk-Adjusted Postoperative Stroke/Cerebrovascular Accident	Risk-Adjusted Postoperative Stroke/Cerebrovascular Accident	2 stars – as-expected performance	2 stars – as-expected performance
Type Score	Please see Appendix	Risk-Adjusted Postoperative Surgical Re-exploration	Risk-Adjusted Postoperative Surgical Re-exploration	3 stars – higher-than-expected performance	3 stars – higher-than-expected performance
Algorithm	Please see Appendix	Risk-Adjusted Postoperative Deep Sternal Wound Infection Rate	Risk-Adjusted Postoperative Deep Sternal Wound Infection Rate	Composite	Composite
Submission items	Please see Appendix	Risk-Adjusted Postoperative Renal Failure	Risk-Adjusted Postoperative Renal Failure	Registry Data STS Adult Cardiac Surgery Database – Version 2.73; STS Adult Cardiac Surgery Database	Registry Data STS Adult Cardiac Surgery Database – Version 2.73; STS Adult Cardiac Surgery Database

				Version 2.81 went live on July 1, 2014.	Version 2.81 went live on July 1, 2014.

Appendix E2: Related and Competing Endorsed Measures (Narrative Format)

0696: STS CABG Composite Score
0114: Risk-Adjusted Postoperative Renal Failure
0115: Risk-Adjusted Surgical Re-exploration
0116: Anti-Platelet Medication at Discharge
0117: Beta Blockade at Discharge
0118: Anti-Lipid Treatment Discharge

Steward

0696: STS CABG Composite Score

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0114: Risk-Adjusted Postoperative Renal Failure

The Society of Thoracic Surgeons

0115: Risk-Adjusted Surgical Re-exploration

The Society of Thoracic Surgeons

0116: Anti-Platelet Medication at Discharge

The Society of Thoracic Surgeons

0117: Beta Blockade at Discharge

The Society of Thoracic Surgeons

0118: Anti-Lipid Treatment Discharge

The Society of Thoracic Surgeons

Description

0696: STS CABG Composite Score

The STS CABG Composite Score comprises four domains consisting of 11 individually NQF-endorsed cardiac surgery measures:

0114: Risk-Adjusted Postoperative Renal Failure

Percent of patients aged 18 years and older undergoing isolated CABG (without pre-existing renal failure) who develop postoperative renal failure or require dialysis

0115: Risk-Adjusted Surgical Re-exploration

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

0116: Anti-Platelet Medication at Discharge

Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on anti-platelet medication

0117: Beta Blockade at Discharge

Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on beta blockers

0118: Anti-Lipid Treatment Discharge

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

Type

0696: STS CABG Composite Score

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;

0114: Risk-Adjusted Postoperative Renal Failure

Outcome

0115: Risk-Adjusted Surgical Re-exploration

Outcome

0116: Anti-Platelet Medication at Discharge

Process

0117: Beta Blockade at Discharge

Process

0118: Anti-Lipid Treatment Discharge

Process

Data Source

0696: STS CABG Composite Score

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;

0114: Risk-Adjusted Postoperative Renal Failure

Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)

0115: Risk-Adjusted Surgical Re-exploration

Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)

0116: Anti-Platelet Medication at Discharge

Facility, Clinician : Group/Practice Hospital

0117: Beta Blockade at Discharge

Registry Data STS Adult Cardiac Surgery Database Version 2.81

0118: Anti-Lipid Treatment Discharge

Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)

Level

0696: STS CABG Composite Score

Domain 3) Use of Internal Mammary Artery (IMA) – Proportion of first-time CABG patients who receive at least one IMA graft;

0114: Risk-Adjusted Postoperative Renal Failure

Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Specifications.docx

0115: Risk-Adjusted Surgical Re-exploration

Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Specifications-636220002799399548.docx

0116: Anti-Platelet Medication at Discharge

No data dictionary

0117: Beta Blockade at Discharge

Available at measure-specific web page URL identified in S.1 No data dictionary

0118: Anti-Lipid Treatment Discharge

Available at measure-specific web page URL identified in S.1 No data dictionary

Setting

0696: STS CABG Composite Score

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.

0114: Risk-Adjusted Postoperative Renal Failure

Facility, Clinician : Group/Practice

0115: Risk-Adjusted Surgical Re-exploration

Facility, Clinician : Group/Practice

0116: Anti-Platelet Medication at Discharge

N/A

0117: Beta Blockade at Discharge

Facility, Clinician : Group/Practice

0118: Anti-Lipid Treatment Discharge

Facility, Clinician : Group/Practice

Numerator Statement

0696: STS CABG Composite Score

All measures are based on audited clinical data collected in a prospective registry. Participants receive a score for each of the domains, plus an overall composite score. The overall composite score is created by “rolling up” the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). For consenting participants, scores and star ratings are publicly reported on the STS website.

0114: Risk-Adjusted Postoperative Renal Failure

Inpatient/Hospital

0115: Risk-Adjusted Surgical Re-exploration

Inpatient/Hospital

0116: Anti-Platelet Medication at Discharge

1a._Evidence_-_0116_Anti-Platelet_Medication_at_Discharge-635570025715849891.docx

0117: Beta Blockade at Discharge

Inpatient/Hospital

0118: Anti-Lipid Treatment Discharge

Inpatient/Hospital

Numerator Details

0696: STS CABG Composite Score

Composite

0114: Risk-Adjusted Postoperative Renal Failure

Number of patients undergoing isolated CABG who develop postoperative renal failure or require dialysis

0115: Risk-Adjusted Surgical Re-exploration

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

0116: Anti-Platelet Medication at Discharge

Number of isolated CABG procedures excluding cases with in-hospital mortality or cases for which discharge aspirin use was contraindicated. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.

0117: Beta Blockade at Discharge

Number of patients undergoing isolated CABG who were discharged on beta blockers

0118: Anti-Lipid Treatment Discharge

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

Denominator Statement

0696: STS CABG Composite Score

Registry Data STS Adult Cardiac Surgery Database – Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014; STS Adult Cardiac Surgery Database Version 2.9 went live on July 1, 2017.

0114: Risk-Adjusted Postoperative Renal Failure

Definition of renal failure/dialysis requirement – Patients with acute renal failure or worsening renal function resulting in one or both of the following:

0115: Risk-Adjusted Surgical Re-exploration

Number of isolated CABG procedures in which any of the following are marked "yes" –

0116: Anti-Platelet Medication at Discharge

Cases are removed from the denominator if there was an in-hospital mortality or if discharge aspirin was contraindicated.

0117: Beta Blockade at Discharge

Number of isolated CABG procedures in which discharge beta blockers [DCBeta (STS Adult Cardiac Surgery Database Version 2.81)] is marked "yes"

0118: Anti-Lipid Treatment Discharge

Number of isolated CABG procedures in which discharge lipid lowering medication [DCLipid (STS Adult Cardiac Surgery Database Version 2.73)] is marked "yes" and lipid lowering discharge medication type [DCLipMT (STS Adult Cardiac Surgery Database Version 2.73)] is marked "statin"

Denominator Details

0696: STS CABG Composite Score

Available at measure-specific web page URL identified in S.1 Attachment ACSD_DataSpecificationsV2_9.pdf

0114: Risk-Adjusted Postoperative Renal Failure

-

0115: Risk-Adjusted Surgical Re-exploration

ReOp for Bleeding [COpReBld (STS Adult Cardiac Surgery Database Version 2.73)], Reintervention for Graft Occlusion (COpReGft), ReOp for Valve Dysfunction (COpReVlv), ReOp for Other Cardiac Reason (COpReOth)

0116: Anti-Platelet Medication at Discharge

Mortality Discharge Status (MtDCStat), Mortality Date (MtDate), and Discharge Date (DischDt) indicate an in-hospital mortality; discharge aspirin (DCASA) is marked as “Contraindicated”

0117: Beta Blockade at Discharge

Patients undergoing isolated CABG

0118: Anti-Lipid Treatment Discharge

All patients undergoing isolated CABG

Exclusions

0696: STS CABG Composite Score

Facility, Clinician : Group/Practice

0114: Risk-Adjusted Postoperative Renal Failure

-

0115: Risk-Adjusted Surgical Re-exploration

All patients undergoing isolated CABG

0116: Anti-Platelet Medication at Discharge

N/A

0117: Beta Blockade at Discharge

Number of isolated CABG procedures excluding cases with an in-hospital mortality or cases for which discharge beta blocker use was contraindicated. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.

0118: Anti-Lipid Treatment Discharge

Number of isolated CABG procedures excluding cases with an in-hospital mortality or cases for which discharge anti-lipid treatment use was contraindicated. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.

Exclusion Details

0696: STS CABG Composite Score

Inpatient/Hospital

0114: Risk-Adjusted Postoperative Renal Failure

Number of isolated CABG procedures in which postoperative renal failure [CRenFail (STS Adult Cardiac Surgery Database Version 2.9)] is marked as "yes"

0115: Risk-Adjusted Surgical Re-exploration

Number of isolated CABG procedures. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.

0116: Anti-Platelet Medication at Discharge

No risk adjustment or risk stratification

0117: Beta Blockade at Discharge

Cases are removed from the denominator if there was an in-hospital mortality or if discharge beta blocker was contraindicated.

0118: Anti-Lipid Treatment Discharge

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

Risk Adjustment

0696: STS CABG Composite Score

Please see Appendix

0114: Risk-Adjusted Postoperative Renal Failure

All patients undergoing isolated CABG

0115: Risk-Adjusted Surgical Re-exploration

N/A

0116: Anti-Platelet Medication at Discharge

0117: Beta Blockade at Discharge

Mortality Discharge Status (MtDCStat), Mortality Date (MtDate), and Discharge Date (DischDt) indicate an in-hospital mortality; discharge beta blocker (DCBeta) marked as “Contraindicated”

0118: Anti-Lipid Treatment Discharge

Mortality Discharge Status (MtDCStat), Mortality Date (MtDate), and Discharge Date (DischDt) indicate an in-hospital mortality; DCLipid is marked as "Contraindicated"

Stratification

0696: STS CABG Composite Score

Please see Appendix

0114: Risk-Adjusted Postoperative Renal Failure

Number of isolated CABG procedures including re-operations; the SQL code used to create the function to identify cardiac procedures is provided in the appendix.

0115: Risk-Adjusted Surgical Re-exploration

N/A

0116: Anti-Platelet Medication at Discharge

better quality = higher score

0117: Beta Blockade at Discharge

No risk adjustment or risk stratification

0118: Anti-Lipid Treatment Discharge

No risk adjustment or risk stratification

Type Score

0696: STS CABG Composite Score

Please see Appendix

0114: Risk-Adjusted Postoperative Renal Failure

Patients with documented history of renal failure, baseline serum creatinine of 4.0 or higher; prior renal transplants are not considered preoperative renal failure unless since transplantation their Cr has been or is 4.0 or higher

0115: Risk-Adjusted Surgical Re-exploration

Statistical risk model

0116: Anti-Platelet Medication at Discharge

0117: Beta Blockade at Discharge

0118: Anti-Lipid Treatment Discharge

Algorithm

0696: STS CABG Composite Score

Please see Appendix

0114: Risk-Adjusted Postoperative Renal Failure

(Dialysis) is marked yes; Last Creatinine Level (CreatLst) is 4.0 or higher

0115: Risk-Adjusted Surgical Re-exploration

0116: Anti-Platelet Medication at Discharge

0117: Beta Blockade at Discharge

0118: Anti-Lipid Treatment Discharge

Submission items

0696: STS CABG Composite Score

Please see Appendix

0114: Risk-Adjusted Postoperative Renal Failure

Statistical risk model

0115: Risk-Adjusted Surgical Re-exploration

0115: Risk-Adjusted Surgical Re-exploration

0116: Anti-Platelet Medication at Discharge

Rate/proportion

0117: Beta Blockade at Discharge

N/A

0118: Anti-Lipid Treatment Discharge

N/A

0696: STS CABG Composite Score
0119: Risk-Adjusted Operative Mortality for CABG
0127: Preoperative Beta Blockade
0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)
0130: Risk-Adjusted Deep Sternal Wound Infection
0131: Risk-Adjusted Stroke/Cerebrovascular Accident
0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Steward

0696: STS CABG Composite Score

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0119: Risk-Adjusted Operative Mortality for CABG

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0127: Preoperative Beta Blockade

The Society of Thoracic Surgeons

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

The Society of Thoracic Surgeons

0130: Risk-Adjusted Deep Sternal Wound Infection

The Society of Thoracic Surgeons

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

The Society of Thoracic Surgeons

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

The Society of Thoracic Surgeons

Description

0696: STS CABG Composite Score

The STS CABG Composite Score comprises four domains consisting of 11 individually NQF-endorsed cardiac surgery measures:

0119: Risk-Adjusted Operative Mortality for CABG

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

0127: Preoperative Beta Blockade

Percent of patients aged 18 years and older undergoing isolated CABG who received beta blockers within 24 hours preceding surgery.

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

Percent of patients aged 18 years and older undergoing isolated CABG who require intubation for more than 24 hours postoperatively

0130: Risk-Adjusted Deep Sternal Wound Infection

Percent of patients aged 18 years and older undergoing isolated CABG for whom mediastinitis or deep sternal wound infection is diagnosed within 30 days postoperatively or at any time during the hospitalization for surgery

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

Percent of patients aged 18 years and older undergoing isolated CABG who have a postoperative stroke (i.e., any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that did not resolve within 24 hours

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Percentage of patients aged 18 years and older undergoing isolated coronary artery bypass graft (CABG) who received an internal mammary artery (IMA) graft

Type

0696: STS CABG Composite Score

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;

0119: Risk-Adjusted Operative Mortality for CABG

Outcome

0127: Preoperative Beta Blockade

Process

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

Outcome

0130: Risk-Adjusted Deep Sternal Wound Infection

Outcome

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

Outcome

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Process

Data Source

0696: STS CABG Composite Score

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;

0119: Risk-Adjusted Operative Mortality for CABG

Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)

0127: Preoperative Beta Blockade

Registry Data STS Adult Cardiac Surgery Database Version 2.81

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)

0130: Risk-Adjusted Deep Sternal Wound Infection

Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Registry Data STS Adult Cardiac Surgery Database Version 2.81

Level

0696: STS CABG Composite Score

Domain 3) Use of Internal Mammary Artery (IMA) – Proportion of first-time CABG patients who receive at least one IMA graft;

0119: Risk-Adjusted Operative Mortality for CABG

Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Specifications-635307506255634552.doc

0127: Preoperative Beta Blockade

Available at measure-specific web page URL identified in S.1 No data dictionary

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Specifications.doc

0130: Risk-Adjusted Deep Sternal Wound Infection

Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Specifications-635570255313893234-636220007682323593-636511009556464790.docx

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Specifications-635307594428525960.docx

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Available at measure-specific web page URL identified in S.1 No data dictionary

Setting

0696: STS CABG Composite Score

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.

0119: Risk-Adjusted Operative Mortality for CABG

Facility, Clinician : Group/Practice

0127: Preoperative Beta Blockade

Facility, Clinician : Group/Practice

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

Facility, Clinician : Group/Practice

0130: Risk-Adjusted Deep Sternal Wound Infection

Facility, Clinician : Group/Practice

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

Facility, Clinician : Group/Practice

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Facility, Clinician : Group/Practice

Numerator Statement

0696: STS CABG Composite Score

All measures are based on audited clinical data collected in a prospective registry. Participants receive a score for each of the domains, plus an overall composite score. The overall composite score is created by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). For consenting participants, scores and star ratings are publicly reported on the STS website.

0119: Risk-Adjusted Operative Mortality for CABG

Inpatient/Hospital

0127: Preoperative Beta Blockade

Inpatient/Hospital

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

Inpatient/Hospital

0130: Risk-Adjusted Deep Sternal Wound Infection

Inpatient/Hospital

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

Inpatient/Hospital

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Inpatient/Hospital

Numerator Details

0696: STS CABG Composite Score

Composite

0119: Risk-Adjusted Operative Mortality for CABG

Number of patients undergoing isolated 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

0127: Preoperative Beta Blockade

Number of patients undergoing isolated CABG who received beta blockers within 24 hours preceding surgery

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

Number of patients undergoing isolated CABG who require intubation > 24 hours following exit from the operating room

0130: Risk-Adjusted Deep Sternal Wound Infection

Number of patients aged 18 years and older undergoing isolated CABG for whom mediastinitis or deep sternal wound infection is diagnosed within 30 days postoperatively or at any time during the hospitalization for surgery

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

Number of patients undergoing isolated CABG who have a postoperative stroke (i.e., any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that did not resolve within 24 hours

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Number of patients undergoing isolated coronary artery bypass graft (CABG) who received an internal mammary artery (IMA) graft

Denominator Statement

0696: STS CABG Composite Score

Registry Data STS Adult Cardiac Surgery Database – Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014; STS Adult Cardiac Surgery Database Version 2.9 went live on July 1, 2017.

0119: Risk-Adjusted Operative Mortality for CABG

Number of isolated CABG procedures with an operative mortality;

0127: Preoperative Beta Blockade

Number of isolated CABG procedures in which preoperative beta blockers [MedBeta (STS Adult Cardiac Surgery Database Version 2.81)] is marked "yes"

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

Number of isolated CABG procedures in which Prolonged Ventilation (CPVntLng) is marked "yes" (STS Adult Cardiac Surgery Database Version 2.9)

0130: Risk-Adjusted Deep Sternal Wound Infection

Numerator time period:

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

Number of isolated CABG procedures in which postoperative stroke [CNStrokP (STS Adult Cardiac Surgery Database Version 2.9)] is marked "yes"

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Number of isolated CABG procedures in which IMA Artery Used [IMAArtUs (STS Adult Cardiac Surgery Database Version 2.81] is marked "Left IMA," "Right IMA," or "Both IMAs"

Denominator Details

0696: STS CABG Composite Score

Available at measure-specific web page URL identified in S.1 Attachment ACSD_DataSpecificationsV2_9.pdf

0119: Risk-Adjusted Operative Mortality for CABG

Number of isolated CABG procedures in which Mortality [Mortalty (STS Adult Cardiac Surgery Database Version 2.9)] and Mortality Operative Death (MtOpD) are marked “yes.” Operative mortality is further verified by the following variables: Mortality Status at 30 days (Mt30Stat), Mortality Date (MtDate), Mortality Discharge Status (MtDCStat)

0127: Preoperative Beta Blockade

Patients undergoing isolated CABG

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

The hours of postoperative ventilation time include OR exit until extubation, plus any additional hours following reintubation.

0130: Risk-Adjusted Deep Sternal Wound Infection

Within 30 days postoperatively or at any time during the hospitalization for surgery

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

All patients undergoing isolated CABG

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Patients undergoing isolated CABG

Exclusions

0696: STS CABG Composite Score

Facility, Clinician : Group/Practice

0119: Risk-Adjusted Operative Mortality for CABG

All patients undergoing isolated CABG

0127: Preoperative Beta Blockade

Number of isolated CABG procedures excluding cases for which preoperative beta blockers were contraindicated or if the clinical status of the patient was emergent or emergent salvage prior to entering the operating room. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

All patients undergoing isolated CABG

0130: Risk-Adjusted Deep Sternal Wound Infection

Number of isolated CABG procedures in which deep sternal infection/mediastinitis [DeepSternInf (STS Adult Cardiac Surgery Database Version 2.9)] is marked "yes"

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

Number of isolated CABG procedures. The SQL code used to create the function to identify cardiac procedures is provided in the appendix.

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Number of isolated CABG procedures excluding cases that were a previous CABG prior to the current admission or if IMA was not used and one of the acceptable reasons was provided. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.

Exclusion Details

0696: STS CABG Composite Score

Inpatient/Hospital

0119: Risk-Adjusted Operative Mortality for CABG

Number of isolated CABG procedures. The SQL code used to create the function to identify cardiac procedures is provided in the appendix.

0127: Preoperative Beta Blockade

Cases are removed from the denominator if preoperative beta blocker was contraindicated or if the clinical status of the patient was emergent or emergent salvage prior to entering the operating room.

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

Number of isolated CABG procedures. The SQL code used to create the function to identify cardiac procedures is provided in the appendix.

0130: Risk-Adjusted Deep Sternal Wound Infection

DeepSternInf

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

N/A

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Cases are removed from the denominator if the patient had a previous CABG prior to the current admission or if IMA was not used and one of the following reasons was provided:

Risk Adjustment

0696: STS CABG Composite Score

Please see Appendix

0119: Risk-Adjusted Operative Mortality for CABG

N/A

0127: Preoperative Beta Blockade

Procedures with preoperative beta blockers [MedBeta (STS Adult Cardiac Surgery Database Version 2.81)] marked as "Contraindicated" or procedures with Status [Status(STS Adult Cardiac Surgery Database Version 2.81)] marked "Emergent" or "Emergent Salvage"

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

N/A

0130: Risk-Adjusted Deep Sternal Wound Infection

Deep incisional SSI: Must meet the following criteria

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

N/A

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

-

Stratification

0696: STS CABG Composite Score

Please see Appendix

0119: Risk-Adjusted Operative Mortality for CABG

N/A

0127: Preoperative Beta Blockade

No risk adjustment or risk stratification

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

N/A

0130: Risk-Adjusted Deep Sternal Wound Infection

- Infection occurs within 30 days after the operative procedure, and involves deep soft tissues of the incision (e.g., fascial and muscle layers) and patient has at least one of the following:

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

Statistical risk model

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

-

Type Score

0696: STS CABG Composite Score

Please see Appendix

0119: Risk-Adjusted Operative Mortality for CABG

Statistical risk model

0127: Preoperative Beta Blockade

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

Statistical risk model

0130: Risk-Adjusted Deep Sternal Wound Infection

- Purulent drainage from the deep incision.

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

-

Algorithm

0696: STS CABG Composite Score

Please see Appendix

0119: Risk-Adjusted Operative Mortality for CABG

0127: Preoperative Beta Blockade

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

0130: Risk-Adjusted Deep Sternal Wound Infection

- A deep incision that spontaneously dehisces or is deliberately opened by a surgeon, attending physician or other designee and is culture-positive or not cultured, and patient has at least one of the following signs or symptoms:

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Patients with previous CABG, identified where PrCAB is marked "yes"

Submission items

0696: STS CABG Composite Score

Please see Appendix

0119: Risk-Adjusted Operative Mortality for CABG

0127: Preoperative Beta Blockade

N/A

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

0129: Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)

0130: Risk-Adjusted Deep Sternal Wound Infection

- Fever (>38°C)

0131: Risk-Adjusted Stroke/Cerebrovascular Accident

N/A

0134: Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)

Or

0696: STS CABG Composite Score
2561: STS Aortic Valve Replacement (AVR) Composite Score
2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score
3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score
3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

Steward

0696: STS CABG Composite Score

The Society of Thoracic Surgeons

2561: STS Aortic Valve Replacement (AVR) Composite Score

The Society of Thoracic Surgeons

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

The Society of Thoracic Surgeons

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

The Society of Thoracic Surgeons

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

The Society of Thoracic Surgeons

Description

0696: STS CABG Composite Score

The STS CABG Composite Score comprises four domains consisting of 11 individually NQF-endorsed cardiac surgery measures:

2561: STS Aortic Valve Replacement (AVR) Composite Score

STS AVR Composite Score comprises two domains consisting of six 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; and 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, and 5. cerebrovascular accident/permanent stroke. All measures are based on audited clinical data collected in a prospective registry and are risk-adjusted.

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

The STS AVR+CABG Composite Score comprises two domains consisting of six 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; and 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, and 5. cerebrovascular accident/permanent stroke. All measures are based on audited clinical data collected in a prospective registry and are risk-adjusted.

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

The STS Mitral Valve Repair/Replacement (MVRR) Composite Score measures surgical performance for isolated MVRR with or without concomitant tricuspid valve repair (TVr), surgical ablation for atrial fibrillation (AF), or repair of atrial septal defect (ASD). To assess overall quality, the STS MVRR Composite Score comprises two domains consisting of six measures:

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

The STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score measures surgical performance for MVRR + CABG with or without concomitant Atrial Septal Defect (ASD) and Patient Foramen Ovale (PFO) closures, tricuspid valve repair (TVr), or surgical ablation for atrial fibrillation (AF). To assess overall quality, the STS MVRR +CABG Composite Score comprises two domains consisting of six measures:

Type

0696: STS CABG Composite Score

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;

2561: STS Aortic Valve Replacement (AVR) Composite Score

Participants receive a score for each of the two domains, plus an overall composite score. The overall composite score was created by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). Star ratings are publicly reported on the STS website and are also currently reported on the Consumer Reports website.

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

Participants receive a score for each of the two domains, plus an overall composite score. The overall composite score was created by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). Star ratings are publicly reported on the STS website.

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

Domain 1 – Absence of Operative Mortality

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

Domain 1 – Absence of Operative Mortality

Data Source

0696: STS CABG Composite Score

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;

2561: STS Aortic Valve Replacement (AVR) Composite Score

Composite

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

Composite

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

Proportion of patients (risk-adjusted) who do not experience operative mortality. Operative mortality is defined as death before hospital discharge or within 30 days of the operation.

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

Proportion of patients (risk-adjusted) who do not experience operative mortality. Operative mortality is defined as death before hospital discharge or within 30 days of the operation.

Level

0696: STS CABG Composite Score

Domain 3) Use of Internal Mammary Artery (IMA) – Proportion of first-time CABG patients who receive at least one IMA graft;

2561: STS Aortic Valve Replacement (AVR) Composite Score

Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

Registry Data STS Adult Cardiac Surgery Database Version 2.81 (effective July 1, 2014); Version 2.9 (effective July 1, 2017)

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

Domain 2 – Absence of Major Morbidity

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

Domain 2 – Absence of Major Morbidity

Setting

0696: STS CABG Composite Score

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.

2561: STS Aortic Valve Replacement (AVR) Composite Score

Available at measure-specific web page URL identified in S.1 Attachment S.2b._-_S.15._Detailed_Risk_Model_Specifications.STS_AVR_Composite_Score.docx

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

Available at measure-specific web page URL identified in S.1 Attachment S.2b._-_S.15._Detailed_Risk_Model_Specifications.STS_AVR-CABG_Composite_Score.docx

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

Proportion of patients (risk-adjusted) who do not experience any major morbidity. Major morbidity is defined as the occurrence of any one or more of the following major complications:

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

Proportion of patients (risk-adjusted) who do not experience any major morbidity. Major morbidity is defined as the occurrence of any one or more of the following major complications:

Numerator Statement

0696: STS CABG Composite Score

All measures are based on audited clinical data collected in a prospective registry. Participants receive a score for each of the domains, plus an overall composite score. The overall composite score is created by “rolling up” the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by one star (below average performance), two stars (average performance), or three stars (above average performance). For consenting participants, scores and star ratings are publicly reported on the STS website.

2561: STS Aortic Valve Replacement (AVR) Composite Score

Facility, Clinician : Group/Practice

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

Facility, Clinician : Group/Practice

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

1.

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

1.

Numerator Details

0696: STS CABG Composite Score

Composite

2561: STS Aortic Valve Replacement (AVR) Composite Score

Inpatient/Hospital

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

Inpatient/Hospital

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

2.

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

2.

Denominator Statement

0696: STS CABG Composite Score

Registry Data STS Adult Cardiac Surgery Database – Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014; STS Adult Cardiac Surgery Database Version 2.9 went live on July 1, 2017.

2561: STS Aortic Valve Replacement (AVR) Composite Score

Due to the complex methodology used to construct the composite measure, it is impractical to separately discuss the numerator and denominator. The following discussion describes how each domain score is calculated and how these are combined into an overall composite score.

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

Due to the complex methodology used to construct the composite measure, it is impractical to separately discuss the numerator and denominator. The following discussion describes how each domain score is calculated and how these are combined into an overall composite score.

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

3.

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

3.

Denominator Details

0696: STS CABG Composite Score

Available at measure-specific web page URL identified in S.1 Attachment ACSD_DataSpecificationsV2_9.pdf

2561: STS Aortic Valve Replacement (AVR) Composite Score

The STS AVR Composite Score comprises two domains consisting of six individual measures:

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

The STS AVR+CABG Composite Score comprises two domains consisting of six individual measures:

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

4.

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

4.

Exclusions

0696: STS CABG Composite Score

Facility, Clinician : Group/Practice

2561: STS Aortic Valve Replacement (AVR) Composite Score

1. Absence of Operative Mortality

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

1. Absence of Operative Mortality

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

5.

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

5.

Exclusion Details

0696: STS CABG Composite Score

Inpatient/Hospital

2561: STS Aortic Valve Replacement (AVR) Composite Score

NQF # 0120 Risk-Adjusted Operative Mortality for AVR

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

NQF # 0123 Risk-Adjusted Operative Mortality for AVR+CABG Surgery

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

Outcome data are collected on all patients and from all participants. For optimal measure reliability, participants meeting a volume threshold of at least 36 cases over 3 years (i.e., approximately one mitral case per month) receive a score for each of the two domains, plus an overall composite score. The overall composite score is created by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by the following:

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

Outcome data are collected on all patients and from all participants. For optimal measure reliability, participants meeting a volume threshold of at least 25 cases over 3 years receive a score for each of the two domains, plus an overall composite score. The overall composite score is created by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to rating categories designated by the following:

Risk Adjustment

0696: STS CABG Composite Score

Please see Appendix

2561: STS Aortic Valve Replacement (AVR) Composite Score

2. Absence of Major Morbidity, scored any-or-none. The measures used are the same morbidity outcomes included in NQF #0696 STS CABG Composite Score.

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

2. Absence of Major Morbidity, scored any-or-none. The measures used are the same morbidity outcomes included in NQF #0696 STS CABG Composite Score.

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

1 star – lower-than-expected performance

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

1 star – lower-than-expected performance

Stratification

0696: STS CABG Composite Score

Please see Appendix

2561: STS Aortic Valve Replacement (AVR) Composite Score

Risk-Adjusted Postoperative Stroke/Cerebrovascular Accident

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

Risk-Adjusted Postoperative Stroke/Cerebrovascular Accident

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

2 stars – as-expected performance

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

2 stars – as-expected performance

Type Score

0696: STS CABG Composite Score

Please see Appendix

2561: STS Aortic Valve Replacement (AVR) Composite Score

Risk-Adjusted Postoperative Surgical Re-exploration

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

Risk-Adjusted Postoperative Surgical Re-exploration

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

3 stars – higher-than-expected performance

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

3 stars – higher-than-expected performance

Algorithm

0696: STS CABG Composite Score

Please see Appendix

2561: STS Aortic Valve Replacement (AVR) Composite Score

Risk-Adjusted Postoperative Deep Sternal Wound Infection Rate

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

Risk-Adjusted Postoperative Deep Sternal Wound Infection Rate

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

Composite

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

Composite

Submission items

0696: STS CABG Composite Score

Please see Appendix

2561: STS Aortic Valve Replacement (AVR) Composite Score

Risk-Adjusted Postoperative Renal Failure

2563: STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

Risk-Adjusted Postoperative Renal Failure

3031: STS Mitral Valve Repair/Replacement (MVRR) Composite Score

Registry Data STS Adult Cardiac Surgery Database – Version 2.73; STS Adult Cardiac Surgery Database Version 2.81 went live on July 1, 2014.

3032: STS Mitral Valve Repair/Replacement (MVRR) + Coronary Artery Bypass Graft (CABG) Composite Score

Registry Data STS Adult Cardiac Surgery Database – Version 2.73; STS Adult Cardiac Surgery Database Version 2.81 went live on July 1, 2014.

Appendix F: Pre-Evaluation Comments

Comments received as of January 30, 2020.

Topic	Commenter	Comment
Surgery Standing Committee Roster	Linda Costal, consumer	It is good to see you are adding a consumer advocate.

National Quality Forum
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