NQF-Endorsed Measures for Surgical Procedures: 2015

DRAFT REPORT

June 19, 2015

NATIONAL QUALITY FORUM

This report is funded by the Department of Health and Human Services under contract HHSM-500-2012-00009I Task Order HHSM-500-T00008

Contents

NQF-Endorsed Measures for Surgical Procedures

DRAFT REPORT

Executive Summary

The rate of surgical procedures is increasing annually. As one example, the rate of procedures performed in freestanding ambulatory surgery centers increased by 300 percent in the ten-year period from 1996 – 2006. In 2006, an estimated 53.3 million surgical and non-surgical procedures were performed in U.S. ambulatory surgery centers, hospital-based and freestanding.[1] In 2010, 51.4 million inpatient surgical procedures were performed in the United States.[2]

With 132 measures the Surgery portfolio is one of NQF's largest. These measures address subjects such as perioperative safety, care coordination, cardiac surgery, vascular surgery, abdominal and colorectal surgery, and a range of other clinical or procedural sub-topics. Many of the measures in the portfolio currently are used in public and/or private accountability and quality improvement programs. However, significant gaps remain in the topic area of surgical measurement. There is also a recognized need to harmonize related measures across sites and settings of care.

The surgery project is one of the first to transition to the use of Standing Steering Committees. The 25-member Surgery Standing Committee oversees the NQF surgery measure portfolio, evaluating both newly-submitted and previously-endorsed measures against NQF's measure evaluation criteria, identifying gaps in the measurement portfolio, providing feedback on how the portfolio should evolve, and serving on any ad hoc or expedited projects in their designated topic areas.

On March 19-20, 2015, the Surgery Standing Committee evaluated 4 new measures, 1 resubmitted measure, and 19 measures undergoing maintenance review against NQF's standard evaluation criteria. The Committee recommended twenty-two of these measures for endorsement (1 for reserve status); one was not recommended and one was deferred. The measures are listed by endorsement status below:

Recommended:

- 0115: Risk-Adjusted Surgical Re-exploration
- 0118: Lipid-lowering Treatment at Discharge
- 0120: Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR)
- 0121: Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement
- 0122: Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement + CABG Surgery
- 0123: Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery

[1] Cullen KA, Hall MJ, Golosinskiy A. Ambulatory Surgery in the United States, 2006. National Health Statistics Reports, No.11, revised Sept 4,2009. Last accessed March 30, 2015.

[2] Centers for Disease Control and Prevention (CDC). National Hospital Discharge Survey: 2010 table. Procedures by selected patient characteristics – Number by procedure category and age. Last accessed March 30, 2015.

- 0130: Risk-Adjusted Deep Sternal Wound Infection
- 0236: Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery
- 0354: Hip Fracture Mortality Rate (IQI 19)
- 0465: Perioperative Anti-Platelet Therapy for Patients Undergoing Carotid Endarterectomy
- 0533: Postoperative Respiratory Failure Rate (PSI 11)
- 0696: CABG Composite Score
- 0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by 5 STAT Mortality Categories
- 0733: Operative Mortality Stratified by the 5 STAT Mortality Categories
- 1501: Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair
- 1502: Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair + CABG Surgery
- 2038: Performing Vaginal Apical Suspension at the Time of Hysterectomy to Address Pelvic Organ Prolapse
- 2677: Preoperative Evaluation for Stress Urinary Incontinence Prior to Hysterectomy for Pelvic Organ Prolapse
- 2681: Perioperative Temperature Management
- 2683: Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery
- 2687: Hospital Visits after Hospital Outpatient Surgery

Recommended with Reserve Status:

- 0116: Anti-Platelet Medication at Discharge

Not Recommended:

- 0360: Esophageal Resection Mortality Rate (IQI 8)

Deferred:

- 0361: Esophageal Resection Mortality Volume (IQI 1)
- 0736 : Survival Predictor for Abdominal Aortic Aneurysm (AAA)©
- 0737 : Survival Predictor for Esophagectomy Surgery©
- 0738 : Survival Predictor for Pancreatic Resection Surgery©

Brief summaries of the measure reviews are included in the body of this report; detailed summaries of the Committee's discussion and ratings based on the criteria are included in Appendix A.

Introduction

Patients undergo surgery to repair injury, relieve symptoms, restore function, remove a diseased organ or replace an anatomical part of the body. Many surgeries are planned, though several types of surgery occur under emergency conditions such as trauma, fracture, and acute infection. The majority of hospitalizations (63 percent in 2013) involve a surgical procedure. The rate of surgical procedures is increasing annually with 51.4 million inpatient surgeries performed in the United States in 2010[1] and 53.3 million procedures performed in ambulatory surgery centers.[2] Ambulatory surgery centers are the fastest growing provider type participating in Medicare.[3]

Surgery can be a daunting prospect for patients, and more consumers are seeking out information and turning to public reports of quality measures to make decisions about surgical care. In 2011, the Agency for Healthcare Research and Quality (AHRQ) studied users of public web sites and publicly reported data. AHRQ found that the top medical conditions of interest to consumers using public web sites are heart disease (27%) and surgery (23%).[4] For patients and families, the important aspects of quality are the likelihood of surgical success—i.e., the surgery achieving its intended outcome—and avoidance of complications.

Surgical Care

Care of a patient undergoing surgery may require many types of services, including pre-operative evaluation, appropriate recommendation for surgery, counseling about risks and informed consent, patient education, hospital admission, preparation of the surgical site, anesthesia, performance of the procedure by the surgical team (surgeons, nurses and technicians), immediate post-operative/post-anesthesia recovery, intensive care, general post-operative care including wound care and resumption of normal functioning (eating, ambulation), post-acute care, rehabilitation, and home health care. High quality care during each step is necessary for the overall success of the operation.

Recent publications have identified ongoing concerns with the quality of surgical care:

- Among Medicare patients, nearly one in seven patients hospitalized for a major surgical procedure is readmitted to the hospital within 30 days after discharge.[5]
- Medicare payments around episodes of inpatient surgery are substantially higher at hospitals with high complication rates.[6]
- Despite overall improvement in surgical mortality, patients from low-income areas had worse surgical outcomes than those from high-income areas for nine of twelve measures in both 2000 and 2009.[7]

National Quality Strategy

The National Quality Strategy (NQS)[8] serves as the overarching framework for guiding and aligning public and private efforts across all levels (local, state, and national) to improve the quality of health care in the U.S. The NQS establishes the "triple aim" of better care, affordable care, and healthy people/communities, focusing on six priorities to achieve those aims: Safety, Person and Family Centered Care, Communication and Care Coordination, Effective Prevention and Treatment of Illness, Best Practices for Healthy Living, and Affordable Care.

Improvement efforts for surgical care are consistent with the NQS triple aim and align with several of the NQS priorities, including:

- Making care safer by reducing harm caused in the delivery of care. Making patients safe by global use of evidence-based patient safety practices to reduce adverse events and complications is a cornerstone of high quality surgical care.
- Ensuring that each person and family is engaged as partners in their care. Family support and patient education in self-care during the preoperative and post-operative timeframes significantly contributes to successful surgical outcomes.
- Promoting effective communication and coordination of care. As noted above, perioperative care encompasses many services and practitioners who must coordinate care and effectively communicate with each other to ensure a successful and efficient surgical outcome.

Trends and Performance

National Healthcare Quality Report

The 2013 National Healthcare Quality and Disparities Report[9] identify several measures of the quality of surgical care:

- From 2008 to 2010, there were no statistically significant changes in the overall risk-adjusted rate of postoperative sepsis (severe infection).
- From 2006-2008 to 2011, surgical site (wound) infections reported to the National Healthcare Safety Network decreased 17 percent.
- From 2009 to 2011, there were no statistically significant changes in the overall rate of postoperative catheter-associated urinary tract infections.

The 2013 National Healthcare Quality and Disparities Report indicates that several important dimensions of quality that are not currently measured are "measures of the extent to which pain is reduced or function improves for patients undergoing back surgery, total joint replacement, or other orthopedic procedures."

Surgery Measure Evaluation: Refining the Evaluation Process

A change to the Consensus Development Process (CDP)—transitioning to Standing Steering Committees—has been incorporated into the ongoing maintenance activities for the Surgery portfolio. This change is described below.

Standing Steering Committee

In an effort to remain responsive to its stakeholders' needs, NQF is constantly working to improve the CDP. Volunteer, multi-stakeholder steering committees are the central component to the endorsement process, and the success of the CDP projects is due in large part to the participation of steering committee members. In the past, NQF initiated the Steering Committee nominations process and seated new project-specific committees only when funding for a particular project had been secured. Seating new committees with each project not only lengthened the project timeline, but also resulted in

a loss of process continuity and consistency because committee membership changed—often quite substantially—over time.

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

The Surgery Standing Committee currently includes 25 members (see Appendix D). Each member has been randomly appointed to serve an initial two- or three- year term, after which he/she may serve a subsequent three year term if desired.

In its constant effort to remain efficient, NQF has also removed the priority voting criterion from the CDP. Because committees often discuss the priority of the measure in other sections of the process, it was deemed more effective to have priority integrated into discussions of the various criteria throughout the review of the measure.

NQF Portfolio of Performance Measures for Surgical Procedures

NQF has endorsed at least 132 measures related to surgical care (see Appendix B). These measures address subjects such as perioperative safety, cardiac surgery, vascular surgery, colorectal surgery, and a range of other clinical or procedural subtopics. For the purposes of maintenance, NQF's Surgery Standing Committee is responsible for 73 measures: 23 process measures, 40 outcome measures, one intermediate outcome measure, six structural measures, and three composite measures (see table below).

NQF Surgery Portfolio of Measures

Subtopic	Process	Outcome	Intermediate Outcome	Structure	Composite	Total
Cross-Cutting (Inpatient)	5	2	-	-	-	7
Cross-Cutting (Outpatient)	1	2	-	-	-	3
Cross-Cutting (Inpatient & Outpatient)	1	1	-	-	-	2
General Surgery	-	4	-	-	-	4
Anesthesia	1	-	1	-	-	2
Cardiac Surgery	9	13	-	1	3	26

Subtopic	Process	Outcome	Intermediate Outcome	Structure	Composite	Total
Cardiac Surgery (Pediatric & Congenital)	-	5	-	3	-	8
Colorectal Surgery	-	1	-	-	-	1
Gynecology	2	-	-	-	-	2
Orthopedic Surgery	-	2	-	-	-	2
Otolaryngology	-	2	-	1	-	3
Urology	2	-	-	-	-	2
Thoracic Surgery	-	-	-	1	-	1
Vascular Surgery	2	8	-	-	-	10
Total	23	40	1	6	3	73

The remaining 59 measures have been assigned, for various reasons, to other endorsement projects. These include healthcare-associated infection measures (Patient Safety project), care coordination measures (Care Coordination project), imaging efficiency measures (Efficiency project), and a variety of condition- or procedure-specific outcome measures (Cardiovascular, Cancer, Renal, HEENT, etc.).

NQF-endorsed measures undergo routine "maintenance" (i.e., re-evaluation) to ensure that they are still the best available measures and reflect current science. Over time, and for various reasons, some previously endorsed surgery measures have been removed from the full NQF portfolio. In some cases, measure stewards elect to withdraw their measures from consideration; other measures have lost endorsement upon maintenance review. Loss of endorsement can occur for many different reasons including—but not limited to—a change in evidence without an associated change in specifications, universally high performance on a measure signifying no further opportunity for improvement, and endorsement of a superior measure.

NQF's portfolio of surgery measures is currently organized by topic area. However, the Standing Committee and other stakeholders are encouraged to consider other measurement domains, such as measure type (e.g., process, outcome, patient-reported, etc.), care setting, data source, clinical area, or other relevant factors, for the purposes of identifying and highlighting gaps in measurement related to surgery.

Use of Measures in the Portfolio

Many of the measures in the surgery portfolio are in use in at least one federal program (see Appendix C). In addition, a number of NQF-endorsed surgery measures have been used as part of state, regional, and community measurement initiatives, including various Aligning Forces for Quality (AF4Q) community alliances.

The wide use of NQF-endorsed measures is due in large part to the rigorous and transparent process used by multi-stakeholder committees in evaluation of the measures. These committees are constituted of stakeholders from across the field of interest - clinicians and other experts from hospitals and healthcare providers, employers, health plans, public agencies, community coalitions, and patients. Many of these stakeholders use measures on a daily basis to ensure better care and all of them share a desire to have the best possible measures in place. Importantly, legislative mandate requires that preference be given to NQF-endorsed measures for use in federal public reporting and performance-based payment programs. NQF measures are also used by a variety of stakeholders in the private sector, including hospitals, health plans, and communities.

Improving NQF's Surgery Portfolio

Committee Input on Gaps in the Portfolio

During its discussions the Committee identified numerous areas where additional measure development is needed, including:

- Various specialty areas that are still in early stages of quality measurement, including orthopedic surgery, bariatric surgery, neurosurgery, obstetrics, gynecology, and smaller specialties.
- Measures of mortality that can be captured by other than a specified number of days from surgery such as some schema to capture operative mortality using pre- and post-discharge death.
- Measures of mortality that capture younger patients than those now captured by a number of measures that are specified for adults – typically captured from the Medicare population.
- Measures that mitigate against the potential unintended consequence of avoiding high-risk patients such as those using well-constructed risk adjustment models.
- Measures around functional status such as improved function or return to function after surgery, which could include patient-reported outcomes.
- Measures that incorporate a patient-centered approach to decision-making including determination to forego treatment.
- Measures around neurodevelopment in children; based on concerns that such adverse outcomes can be devastating and lifelong.
- Composite measures that provide a well-rounded picture of episodes of care including short- and long-term morbidity and patient reported outcomes.

Meaningful quality measures in the area of children's surgery are significantly lacking and needed. Some of the key reasons that pediatric measure development in children lag behind those for adults are:

- The number of measurable healthcare encounters in pediatrics in a given institution or across the U.S. is markedly lower than that seen in adults.
- The adverse event rate for almost every event in children is markedly lower than in adults, exacerbating the ability to discriminate between institutions.
- Mortality has been consistently shown not to be a reliable discriminator for almost all pediatric surgical procedures.

- Adding a “pediatric component” or including children in adult measures usually is not an option since the diseases, health status, spectrum of complications, and comorbidities in children are markedly different than in adults and merging data diminishes the value of both the adult and pediatric information.

The Committee gave considerable thought to the value of appropriately constructed registries in filling gaps as well as monitoring and reporting quality. Committee members noted that a major hurdle for registries are the associated costs – start-up costs, ongoing maintenance costs, research that leads to measure development, testing, application and maintenance. Additionally, costs of registry participation are a consideration that will increase as new registries come into use. A concern for groups or institutions that are not members of specific registries, databases or programs is whether the specifications of measures drawn from these sources are described such that the data can be collected outside the registry/database."

In addition to these areas, the Committee discussed the next generation of measures, considering possible approaches to measurement in the future including e-measures. Committee members observed that there is increasing integration of care across teams of healthcare providers, and as a result there is a growing need for shared accountability measures. Relatedly, Committee members expressed a desire to see more composite measures to allow for information capture on relevant structures, processes, and outcomes to develop a picture of the overall quality of care. In addition, the Committee noted that understanding the elements and outcomes of surgical quality can have a great deal to do with patient and provider decision-making, and expressed an interest in seeing more measures around shared decision-making.

Measures in the “Pipeline”

NQF recently launched a *Measure Inventory Pipeline*—a virtual space for developers to share information on measure development activities. Developers can use the Pipeline to display data on current and planned measure development and to share successes and challenges. Information shared via the Pipeline is available in real time and can be revised at any time. NQF expects that developers will use the Pipeline as a tool to connect to, and collaborate with, peers on measurement development ideas.

Currently, no measures related to surgical procedures have been submitted to the Pipeline.

Potential of the “Incubator”

With approval of its Board, NQF is working to develop a measure “Incubator”. The Incubator would bring together individuals and groups that have ideas for measures with people who have demonstrated expertise in measure development and, where possible, in the field of interest. In that milieu, potential developers would have access to the experts and ability to identify test beds that could accelerate the measure development process. The expectation of the Incubator is that it could help in the development of expertise and bring strong measures to use more rapidly than at present.

Surgery Measure Evaluation

On March 19-20, 2015 the Surgery Standing Committee evaluated 4 new measures, 1 resubmitted measure, and 19 measures undergoing maintenance review against NQF's standard evaluation criteria. The Committee's discussion and ratings of the criteria are summarized in the evaluation tables in Appendix A.

Surgery Measure Review Summary

	Maintenance	New	Resubmitted*	Total
Measures withdrawn from consideration	3	-	-	3
Measures under consideration	19	4	1	24
Measures recommended	16	4	1	21
Measures recommended with reserve status	1	-	-	1
Measures deferred	1	-	-	1
Measures not recommended	1	-	-	1
Reasons for not recommending	Reliability – 1	-	-	-

**This measure was reviewed in a previous Surgery Measure Endorsement Project and was not recommended for endorsement. The Developer revised and resubmitted the measure for review in the 2015 Surgery Measure Endorsement Project.*

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 has begun soliciting comments prior to evaluation of the measures via an online tool located on the project webpage. For this evaluation cycle, the pre-evaluation comment period was open from January 28 – February 10, 2015 for 24 of the 24 measures under review. All submitted comments were provided to the Committee prior to their deliberations at the in-person meeting.

A total of 18 pre-evaluation comments were received from provider, health plan, and purchaser council members (see Appendix E). Much of the commentary pertains to the evidence and testing information provided by the measure developers.

Overarching Issues

During the Standing Committee's discussion of the measures, several overarching issues emerged that were factored into the Committee's ratings and recommendations for multiple measures and are not repeated in detail with each individual measure:

Reserve Status

In its review of a number of measures that have been in use for some years, the Committee looked carefully at whether there was a continued gap in performance representing opportunity for improvement. In 2010, the NQF Board of Directors approved a category of endorsement called "Reserve

Status" for measures that meet all criteria except *1b. Opportunity for Improvement*. While identifying a single measure for Reserve Status, the Committee noted that the designation represents an opportunity to hold measures at the ready, while decreasing the burden of data collection when performance is high. Measures designated for Reserve Status typically have been successful in driving quality improvement both as individual measures and in combination with other measures such as components of composites. The Committee strongly supports such use as well as use as individual measures should a future gap in performance warrant.

Structural Measures

The Committee reviewed two healthcare structure measures, defined by NQF as measures that assess features of a healthcare organization or clinician relevant to the capacity to provide healthcare. Each of the measures considered by the Committee reports volume and is paired with a mortality measure. While expressing that the value of such measures may have been eclipsed by improved methods of performance assessment, the Committee noted that the combination of a volume measure with a companion outcome measure can increase understanding of performance. For this reason, they support continuation of these measures when value of the combination is demonstrated; however, they did express a desire to see such measures in composites that capture a more expanded view of quality. The Committee recognized that there might be a greater need for healthcare structure measures in surgical areas that are in relatively early stages of quality activities.

Increasing Measure Utility

The Committee noted that some of the reviewed measures that are collected by registries require few data elements to calculate measure performance and provide important and relatively straightforward information. Members suggested that such measures could be specified for collection through registries using their standard collection processes and through administrative claims or clinical data using ICD, CPT codes, etc. to enable their use by a wider group of providers. They noted that while robust clinical data are preferred over administrative data, the latter could provide significant, complementary information.

Accountability

As part of its discussion of measures for purposes of quality improvement and accountability, the Committee reflected on the uses to which measures are put and how level of expected or desired performance should be factored into measure evaluation. Measures can be used for reporting and/or for payment and the tolerance for level of performance may be relatively high or lower depending on various factors. These issues are part of what must be addressed in evaluating measures to determine the relative value of any given measure in improving quality and in conveying accountability.

Summary of Measure Evaluation

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

The following brief summaries of the measures and related evaluation highlight the major aspects that were considered by the Committee. Details of the Committee's discussion and ratings of the criteria are included in Appendix A.

Cardiac Surgery

Twelve previously NQF-endorsed measures addressing adult Cardiac Surgery were reviewed. All of the 12 measures were recommended for endorsement, one in Reserve Status.

The following 11 measures are based on the Society of Thoracic Surgeons (STS) Adult Cardiac Surgery Database. STS estimates that data from more than 90 percent of coronary cardiac surgery procedures performed in the US are submitted to the registry. These data are submitted by the hospitals and cardiac surgeon groups that are database participants. In 2014, 10 percent of database participants were audited. The audit involves re-abstraction of data for 20 cases and comparison of 74 data elements/variables with those submitted to the data warehouse. The overall aggregate agreement rate was 95.73 percent. Database participants, numbering more than 1,000 hospitals and cardiac surgeon groups, pay annual participation fees. Approximately 41.5 percent of participants voluntarily participate in the STS public reporting program.

0115 Risk-Adjusted Surgical Re-exploration (The Society of Thoracic Surgeons): Recommended

Description: percent of patients aged 18 years and older undergoing isolated CABG who require a re-intervention during the current hospitalization for mediastinal bleeding with or without tamponade, graft occlusion, valve dysfunction, or other cardiac reason; **Measure Type**: Outcome; **Level of Analysis**: Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This risk-adjusted outcome measure has been endorsed since 2004 and is a component of the STS CABG Composite Score (NQF 0696) that is publicly reported by STS and Consumer Reports Health. Details of the risk adjustment model were published in 2009.[10] STS participant-specific rates of re-exploration demonstrates variation ranging from 1.09 percent in the highest performing hospitals/groups to 6.36 percent in lowest performing hospitals/groups for the 12 month period ending in June 2014. In addition to public reporting, STS notes the organization employs the measure for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations. Overall re-exploration rates have declined over the period of time the measure has been monitored.

0116 Anti-platelet Medication at Discharge (The Society of Thoracic Surgeons): Recommended with Reserve Status

Description: percent of patients aged 18 years and older undergoing isolated CABG who were discharged on anti-platelet medication; **Measure Type**: Process; **Level of Analysis**: Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This process measure has been endorsed since 2004 and is one of 11 components of the STS CABG Composite Score (NQF 0696) that is publicly reported by STS and Consumer Reports Health. Anti-platelet

medication at discharge, as specified by the measure, is consistent with ACCF/AHA practice guidelines.[11] STS-reported participant-specific rates of use of anti-platelet medication at discharge demonstrate a high level of performance across participants, varying from 99.9 percent in the highest performing hospitals/groups to 95 percent in lowest performing hospitals/groups. In addition to public reporting, STS notes the organization employs the measure for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations. This measure is related to measure 0465: *Perioperative Anti-Platelet Therapy for Patients Undergoing Carotid Endarterectomy* from the Society for Vascular Surgery (SVS) based on the therapy.

0118 Anti-lipid Treatment Discharge (The Society of Thoracic Surgeons): Recommended

Description: percent of patients aged 18 years and older undergoing isolated CABG who were discharged on a lipid lowering statin; **Measure Type**: Process; **Level of Analysis**: Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This process measure has been endorsed since 2004 and is one of 11 components of the STS CABG Composite Score (NQF 0696) that is publicly reported by STS and Consumer Reports Health. Anti-lipid treatment at discharge, as specified by the measure, is consistent with the 2013 ACC/AHA practice guideline[12] with the exception of age. The ACC/AHA guideline is indicated for ages $\geq$ 21. Discussion of the age range for the measure resulted in agreement to proceed with the measure as specified understanding that the developer will provide additional evidence and information regarding the number of patients ages 18-21 undergoing isolated CABG at the next maintenance cycle. STS-reported participant-specific rates of use of statins at discharge demonstrate significant variation – from 99 percent in the highest performing hospitals/groups to 89 percent in lowest performing hospitals/groups, with an average of 95.5 percent. In addition to public reporting, STS notes the organization employs the measure for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations.

0120 Risk-adjusted Operative Mortality for Aortic Valve Replacement (AVR) (The Society of Thoracic Surgeons): Recommended

Description: percent of patients aged 18 years and older undergoing Aortic Valve Replacement (AVR) who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure; **Measure Type**: Outcome; **Level of Analysis**: Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This risk-adjusted outcome measure has been endorsed since 2004 and is one of six components of the STS AVR Composite Score (NQF 2561) that is publicly reported by STS and Consumer Reports Health. Details of the risk adjustment model were published in 2009.[13] STS participant-specific mortality rates for the measure demonstrate variation ranging from 0.5 percent in the highest performing hospitals/groups to 8.5 percent in lowest performing hospitals/groups for the 12 month period ending in June 2014. In addition to public reporting, STS notes the organization employs it for quality

improvement with participants using data internal to the organization and benchmarking to multiple organizations.

0121 Risk-adjusted Operative Mortality for Mitral Valve (MV) Replacement (The Society of Thoracic Surgeons): Recommended

Description: percent of patients aged 18 years and older undergoing MV replacement who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure; **Measure Type**: Outcome; **Level of Analysis**: Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This risk-adjusted outcome measure has been endorsed since 2004 and is a component of the STS isolated MV surgery composite developed in 2014 that is slated for public reporting by STS and Consumer Reports Health in 2016. Details of the risk adjustment model were published in 2009.[14] STS participant-specific mortality rates for the measure, over a 36 month period ending in June 2014, demonstrate variation ranging from 2.53 percent in the highest performing hospitals/groups to 11.56 percent in lowest performing hospitals/groups. STS notes the organization employs it for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations.

0122 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement + CABG Surgery (The Society of Thoracic Surgeons): Recommended

Description: Number of patients aged 18 years and older undergoing combined MV Replacement and CABG who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure; **Measure Type**: Outcome; **Level of Analysis**: Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This risk-adjusted outcome measure has been endorsed since 2004 and is a component of the STS mitral valve surgery + CABG composite that was developed by STS in 2014. The composite is slated for public reporting by STS and Consumer Reports Health in 2016. Details of the risk adjustment model were published in 2009.[15] STS participant-specific mortality rates for the measure demonstrate variation ranging from 2.3 percent in the highest performing hospitals/groups to 20.6 percent in lowest performing hospitals/groups for the 12 month period ending in June 2014. STS notes the organization employs it for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations.

0123 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery (The Society of Thoracic Surgeons): Recommended

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

of the procedure; **Measure Type**: Outcome; **Level of Analysis**: Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This risk-adjusted outcome measure has been endorsed since 2004 and is a component of the STS AVR + CABG Composite Score (NQF 2563) that is publicly reported by STS and Consumer Reports Health. Details of the risk adjustment model were published in 2009. STS participant-specific mortality rates for the measure demonstrate variation ranging from 1.2 percent in the highest performing hospitals/groups to 10.7 percent in lowest performing hospitals/groups for the 12 month period ending in June 2014. In addition to public reporting, STS notes the organization employs it for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations.

0130 Risk-Adjusted Deep Sternal Wound Infection Rate (The Society of Thoracic Surgeons): Recommended

Description: percent of patients aged 18 years and older undergoing isolated CABG who develop mediastinitis or deep sternal wound infection within 30 days postoperatively; **Measure Type**: Outcome; **Level of Analysis**: Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This risk-adjusted outcome measure has been endorsed since 2004 and is a component of the STS CABG Composite Score (NQF 0696) that is publicly reported by STS and Consumer Reports Health. Details of the risk adjustment model were published in 2009.[16] STS participant-specific infection rates for the measure demonstrate variation ranging from 0 percent in the highest performing hospitals/groups to 1.1 percent in lowest performing hospitals/groups for a 12 month period ending in June 2014. In addition to public reporting, STS notes the organization employs it for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations.

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

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. re-operations 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; **Measure Type**: Composite; **Level of Analysis**: Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This composite measure, originally endorsed in 2011, is comprised of 11 NQF-endorsed measures. It is publicly reported by STS and Consumer Reports Health. Details of the risk adjustment model were published in 2007.[17] Composite measure score distribution was reported for four "harvests". They ranged from 0.923 to 0.987 (latest), 0.891 to 0.986 (Spring 2014), 0.900 to 0.987 (Fall 2013), and 0.899 to 0.986 (Spring 2013). In addition to public reporting, STS notes the organization employs it for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations.

1501 Risk-adjusted Operative Mortality for Mitral Valve (MV) Repair (The Society of Thoracic Surgeons): Recommended

Description: percent of patients aged 18 years and older undergoing MV repair who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure *(This measure applies to the procedure of MV repair, regardless of approach)*; **Measure Type**: Outcome; **Level of Analysis**: Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This risk-adjusted outcome measure has been endorsed since 2011 and is a component of the STS isolated MV surgery composite that was developed in 2014 and is slated for public reporting by STS and Consumer Reports Health in 2016. Details of the risk adjustment model were published in 2009.[18] In the 36-month period ending in June 2014, the average mortality rate among database participants was 1.28 percent with a range from 0.65 to 2.83 percent. STS participant-specific mortality rates for the measure demonstrate variation ranging from 0.1 percent in the highest performing hospitals/groups to 3.0 percentin lowest performing hospitals/groups for period ending in June 2014. STS notes the organization employs it for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations.

1502 Risk-adjusted Operative Mortality for Mitral Valve (MV) Repair + CABG Surgery (The Society of Thoracic Surgeons): Recommended

Description: percent of patients aged 18 years and older undergoing combined MV Repair and CABG who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure; **Measure Type**: Outcome; **Level of Analysis**: Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This risk-adjusted outcome measure has been endorsed since 2011 and is a component of the STS MV surgery + CABG composite that was developed by STS in 2014. The composite is slated for public reporting by STS and Consumer Reports Health in 2016. Details of the risk adjustment model were published in 2009.[19] In the 36 months ending in June 2014, the average mortality rate among database participants was 5.07 percent with a range from 3.12 to 8.01 percent. STS participant-specific mortality rates for the measure demonstrate variation ranging from 1.2 percent in the highest performing hospitals/groups to 10.0 percent in lowest performing hospitals/groups for the period ending in June

2014. STS notes the organization employs it for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations.

0236: CABG: Preoperative beta blocker in patients with isolated CABG surgery (Centers for Medicare & Medicaid Services): Recommended

Description: percentage of isolated Coronary Artery Bypass Graft (CABG) surgeries for patients aged 18 years and older who received a beta blocker within 24 hours prior to surgical incision; **Measure Type**: Process; **Level of Analysis**: Clinician: Group/Practice, Clinician: Individual; **Setting of Care**: Ambulatory care (clinician office/clinic) settings; **Data Source**: Administrative claims, Electronic Clinical Data: Registry, Paper Medical Records

This process measure has been endorsed since 2007 and is included in CMS' Physician Quality Reporting System (PQRS). The measure is intended for use in ambulatory care (clinician office/clinic) settings and since its initial endorsement, it has been expanded to include use by anesthesiologists. The measure is calculated based on data from administrative claims or clinical registries, using CPT® II codes to identify the numerator (patients who received pre-operative beta blockers) and denominator (patients undergoing CABG procedures) populations. The Committee discussed how the literature on use of beta blockers has evolved but ultimately agreed that the measure reflects the existing guidelines and is still useful to measure. The average performance rate has increased slightly each year between 2009 (91 percent) to 2012 (95.9 percent). During the same time period the percent of eligible providers reporting has gone from 29.9 percent to 31.0 percent. The Committee had concerns about not having a clear understanding of why only 31 percent of eligible providers reported the measure. Measure 0127 *Preoperative Beta Blockade* was identified to be a related measure but the Committee agreed both measures should be retained since 0236 is for the outpatient setting and 0127 is for inpatient settings.

Pediatric Surgery

Two previously NQF-endorsed measures and one newly submitted measure addressing Pediatric Surgery were reviewed. All three measures were recommended for endorsement. STS estimates that data from more than 95 percent of pediatric and congenital cardiac surgery procedures performed in the US are submitted to the registry. These data are submitted by the hospitals and cardiac surgeon groups that are database participants. In 2014, 10 percent of database participants were audited. The audit involves re-abstraction of data for 20 cases. The overall data completeness agreement rate was 97.68 percent and overall data accuracy agreement rate was 97.45 percent. Database participants, numbering more than 1,000 hospitals and cardiac surgeon groups, pay annual participation and volume-based fees. Approximately 23 percent of participants voluntarily participated in this first round of the congenital heart surgery STS public reporting initiative.

0732 Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories (The Society of Thoracic Surgeons): Recommended

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

institutional validated complexity stratification tool; **Measure Type**: Structure (paired with 0733 Mortality); Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This structure measure has been endorsed since 2011 and is paired with NQF-endorsed operative mortality measure 0733. It has been publicly reported, with the paired mortality measure, by STS and Consumer Reports Health since January 2015. The relationship between volume and outcome has been shown to be amplified, particularly in the high-complexity surgeries.[20] In addition to public reporting, STS notes the organization employs the measure with the related mortality measure for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations.

0733 Operative Mortality Stratified by the 5 STAT Mortality Categories (The Society of Thoracic Surgeons): Recommended

Description: percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure, stratified by the five STAT Mortality Levels, a multi-institutional validated complexity stratification tool; **Measure Type**: Outcome (paired with 0732 Volume); **Level of Analysis:** Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This mortality measure has been endorsed since 2011 and is paired with NQF-endorsed operative volume measure 0732. It has been publicly reported, with the paired volume measure, by STS since January 2015. The relationship between volume and outcome has been shown to be amplified, particularly in the high-complexity surgeries.[21] Overall mortality rates have improved; i.e., STAT Category 1 in July 2010 – June 2011 was 0.75 percent compared to July 2013 – June 2014 at 0.38 percent. For the most complex category, Category 5, mortality in the same time periods was 18.89 percent compared to 12.75 percent. In addition to public reporting, STS notes the organization employs the measure with the related mortality measure for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations.

2683 Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery (The Society of Thoracic Surgeons): Recommended

Description: percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure; **Measure Type**: Outcome; **Level of Analysis**: Clinician: Group/Practice, Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This is a new risk-adjusted mortality measure. It has been publicly reported by STS since January 2015. The study cohort for the model included all congenital cardiac operations performed by STS participants

between 2010 and 2013, excluding those cases with greater than 10 percent missing or invalid data. This resulted in 86 participants and over 52,000 records available for use in model construction. The observed to expected ratios for 67 (78 percent) of the 86 programs whose data were used in developing and evaluating the model were "same as expected"; 12 (14 percent) had higher-than-expected mortality and 7 (8 percent) had lower-than-expected mortality. The model is pending publication. The Standing Committee noted that the detailed information about construction, testing, and application of the statistical model demonstrated good validity and reliability. In addition to public reporting, STS notes the organization employs the measure for quality improvement with participants using data internal to the organization and benchmarking to multiple organizations.

Vascular Surgery

One previously NQF-endorsed measure addressing Vascular Surgery was reviewed. The Committee recommended the measure for endorsement.

0465: Perioperative Anti-Platelet Therapy for Patients Undergoing Carotid Endarterectomy (Society for Vascular Surgery): Recommended

Description: percentage of patients undergoing carotid endarterectomy (CEA) who are taking an anti-platelet agent (aspirin or clopidogrel or equivilant such as aggrenox/tiglacor etc) within 48 hours prior to surgery and are prescribed this medication at hospital discharge following surgery; **Measure Type**: Process; **Level of Analysis**: Clinician: Group/Practice, Clinician: Individual, Facility, Integrated Delivery System; **Setting of Care**: Ambulatory Care: Clinician Office/Clinic, Hospital/Acute Care Facility; **Data Source**: Electronic Clinical Data: Registry

This process measure has been endorsed since 2008 and is included in the Vascular Quality Initiative (VQI) registry for use in internal quality improvement and benchmarking. VQI participants receive benchmark reports to see how they are performing relative to their peers and to the quality goals set for the measure of 90 percent anti-platelet use for carotid endarterectomy procedures. The developer noted that they are working on the G-codes for PQRS program so that the measure can be reported in other venues besides the VQI registry. The Committee discussed that the supporting literature arrives at different conclusions but overall they agreed that the evidence supports use of these agents to reduce complications and is widely accepted among vascular surgeons. This measure is related to measure 0116 *Anti-Platelet Medication at Discharge* from the Society of Thoracic Surgeons (STS) based on the therapy.

Gynecologic Surgery

One previously submitted measure and one new measure addressing Gynecologic Surgery were reviewed. The Committee recommended both measures for endorsement.

2038: Performing Vaginal Apical Suspension at the Time of Hysterectomy to Address Pelvic Organ Prolapse (American Urogynecologic Society): Recommended

Description: percentage of patients undergoing hysterectomy for the indication of pelvic organ prolapse in which a concomitant vaginal apical suspension (i.e. uterosacral, iliococygeus, sacrospinous or sacral colpopexy, or enterocele repair) is performed; **Measure Type**: Process; **Level of Analysis**:

Clinician: Group/Practice, Clinician: Individual; **Setting of Care**: Hospital/Acute Care Facility Setting; **Data Source**: Administrative claims, Electronic Clinical Data: Electronic Health Record, Paper Medical Records

This risk-adjusted process measure was previously reviewed by the Surgery Standing Committee in 2014 and was not recommended for endorsement by the Committee due to inconsistency in the testing data submitted by the measure developer. After change was made in the measure, it was resubmitted for endorsement consideration. The measure is specified at the individual clinician and group practice levels of analysis for the hospital/acute care facility setting. Data used in the measure denominator and exclusions can be identified through claims data and data for the numerator and the risk-adjustment model must be obtained from the medical record. The measure is not currently in use but the data elements will soon be collected in the national Pelvic Floor Disorder Registry (PFDR). While some Committee members questioned the strength of the evidence presented by the developer, the consensus was that the evidence was adequately robust given the newness of this gynecologic reconstruction surgery subspecialty. To address the concerns regarding testing from the last cycle, the developers presented results of validity testing at the measure score level instead of at the data element level. This measure is related to measure 2063 *Performing cystoscopy at the time of hysterectomy for pelvic organ prolapse to detect lower urinary tract injury*.

2677: Preoperative Evaluation for Stress Urinary Incontinence Prior to Hysterectomy for Pelvic Organ Prolapse (American Urogynecologic Society): Recommended

Description: percentage of women undergoing hysterectomy for pelvic organ prolapse who have preoperative evaluation for stress urinary incontinence; **Measure Type**: Process; **Level of Analysis**: Clinician: Group/Practice; **Setting of Care**: Hospital/Acute Care Facility Setting; **Data Source**: Electronic Clinical Data: Electronic Health Record

This newly submitted process measure is specified for analysis at the group/practice level and is intended for use in the hospital/acute care setting. The data source is the health record using CPT and ICD codes to identify the condition and the procedure of interest. Documentation of evaluation for stress urinary incontinence is done by review of the paper chart. To address concerns about how the measure would be operationalized, the developer provided examples and discussed how a surgeon notes that a stress test was done and expressed that this may need to evolve over time for data collection purposes. The Committee discussed if there is sufficient evidence linking the process to an outcome (doing a preoperative cough stress test prior to prolapse surgery leads to a discussion with a patient, which will lead to better outcomes) and ultimately concluded that the process measure has a relevant link. This new measure, not currently in use, is planned for quality improvement after capture as part of a Pelvic Floor Disorder Registry currently under development with a planned start in April 2015.

Anesthesia

One newly submitted measure addressing Anesthesia was reviewed. The Committee recommended the measure for endorsement.

2681: Perioperative Temperature Management (American Society of Anesthesiologists): Recommended

Description: percentage of patients, regardless of age, who undergo surgical or therapeutic procedures under general or neuraxial anesthesia of 60 minutes duration or longer for whom at least one body temperature greater than or equal to 35.5 degrees Celsius (or 95.9 degrees Fahrenheit) was recorded within the 30 minutes immediately before or the 15 minutes immediately after anesthesia end time; **Measure Type**: Intermediate Clinical Outcome; **Level of Analysis**: Clinician: Group/Practice, Clinician: Individual; **Setting of Care**: Hospital/Acute Care and Ambulatory Surgery Center settings; **Data Source**: Administrative claims, Electronic Clinical Data

This is a new intermediate clinical outcome measure specified for use in the hospital/acute care and ambulatory surgery center settings at the individual clinician and clinician group levels of analysis. This measure was developed as a revision to the previously endorsed process measure 0454. The data source is the National Anesthesia Clinical Outcomes Registry (NACOR), operated by the Anesthesia Quality Institute (AQI). The developer used 2010-2013 NACOR data for measure testing, which included 10,590 patients cared for by 232 physicians or nurse anesthetists. Some Committee members questioned the relatively low reliability scores and to what extent equipment (temperature probes, forehead stickers, etc.) plays a role in the reliability of the measure. The developer suggested that reliability will increase when more data are available in the NACOR. ASA and AQI/NACOR intend to allow Eligible Professionals to report this measure via the Physician Quality Reporting System, Qualified Clinical Data Registry reporting mechanism beginning in 2015 and ASA has submitted this measure to CMS for inclusion in PQRS 2016.

Outpatient Surgery

One previously NQF-endorsed measure addressing Outpatient Surgery was reviewed. The Committee recommended the measure for endorsement.

2687: Hospital Visits after Hospital Outpatient Surgery (Centers for Medicare & Medicaid Services): Recommended

Description: The measure reports a facility-level, post-surgical risk-standardized hospital visit ratio (RSHVR) of the predicted to expected number of all-cause, unplanned hospital visits within 7 days of a same-day surgery at a hospital outpatient department (HOPD) among Medicare fee-for-service (FFS) patients aged 65 years and older; **Measure Type**: Outcome; **Level of Analysis**: Facility; **Setting of Care**: Hospital outpatient setting; **Data Source**: Administrative claims

This is a newly submitted outcome measure that computes a risk-standardized hospital visit ratio (RSHVR) of the predicted to expected number of all-cause, unplanned hospital visits within 7 days of a same-day surgery at a HOPD. The developer assessed provider-level variation in performance scores using data from a 20 percent sample of 2010 Medicare fee-for-service claims that represented 4,234 HOPDs and 212,104 surgeries. The measure developers found that the high performing HOPDs (at or below the 5th percentile) had at least 24 percent fewer than expected surgical hospital visits and those in the 95th percentile had at least 34 percent more hospital visits than what they were expecting given the case and surgical procedure mix. This outcome measure is risk-adjusted using a statistical risk model

and excludes surgeries for patients who are not enrolled in Medicare FFS (Parts A and B) in the month following the same-day surgery. The measure is related to 2539 *Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy.*

Inpatient Surgery

One previously NQF-endorsed measure addressing Inpatient Surgery was reviewed. The Committee recommended the measure for endorsement.

0533: Postoperative Respiratory Failure Rate (PSI 11): (Agency for Healthcare Research and Quality): Recommended

Description: Postoperative respiratory failure (secondary diagnosis), mechanical ventilation, or reintubation cases per 1,000 elective surgical discharges for patients ages 18 years and older. Excludes cases with principal diagnosis for acute respiratory failure; cases with secondary diagnosis for acute respiratory failure present on admission; cases in which tracheostomy is the only operating room procedure or in which tracheostomy occurs before the first operating room procedure; cases with neuromuscular disorders, laryngeal or pharyngeal surgery, craniofacial anomalies that had a procedure for the face, esophageal resection, lung cancer, or degenerative neurological disorders; cases with a procedure on the nose, mouth, or pharynx; cases with respiratory or circulatory diseases; and obstetric discharges; **Measure Type**: Outcome; **Level of Analysis**: Facility; **Setting of Care**: Hospital/Acute Care Facility; **Data Source**: Administrative claims

This outcome measure has been endorsed since 2009. It is specified to identify adult patients undergoing elective surgical procedures who have experienced postoperative respiratory failure. The measure is calculated based on discharge data from administrative claims, using ICD-9-CM diagnosis codes to identify the numerator (patients experiencing postoperative respiratory failure) and denominator (adult patients undergoing elective surgical procedures) populations. The measure specifications and AHRQ QI software can be used with any ICD-9-CM-coded administrative billing/claims/discharge dataset with Present on Admission (POA) information. The measure is currently being used by a variety of entities for public reporting, regulatory and accreditation programs, quality improvement with benchmarking, and internal quality improvement. The Committee raised some concerns about this measure's exclusions, noting that the criteria used to exclude patients from the measure are fairly broad and could lead to excessive or inappropriate exclusions. The Committee noted that further assessment of these potential threats to validity would be helpful in evaluating this measure during its next maintenance review.

Orthopedic Surgery

One previously NQF-endorsed measure addressing Orthopedic Surgery was reviewed. The Committee recommended the measure for endorsement.

0354: Hip Fracture Mortality Rate: (Agency for Healthcare Research and Quality): Recommended

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

However, common practice reports the measure as per 1,000 discharges. The user must multiply the rate obtained from the software by 1,000 to report in-hospital deaths per 1,000 hospital discharges.]; **Measure Type**: Outcome; **Level of Analysis**: Facility; **Setting of Care**: Hospital/acute care setting; **Data Source**: Administrative claims

This outcome measure has been endorsed since 2008, and is part of AHRQ's set of Inpatient Quality Indicators (IQIs). The measure assesses the rate of in-hospital deaths among patients with a principal diagnosis of hip fracture. The Committee agreed that this is an important outcome to measure, noting that measuring and benchmarking hip fracture mortality rates helps institutions to recognize areas for improvement and then work to optimize their processes accordingly. However, Committee members raised some concerns about the measure's ability to reliably distinguish meaningful performance differences between hospitals, particularly among smaller facilities. The developer noted that AHRQ accounts for this issue by applying a statistical formula that effectively provides a 'reliability-adjusted' score. The Committee also discussed whether the measure could be susceptible to 'gaming' by providers, who could potentially transfer or otherwise avoid higher-risk patients to improve their performance. The developers noted that they have examined data such as length-of-stay and discharge distribution in an effort to monitor for these practices, and have not observed any trends that would indicate that it is a significant issue.

Otolaryngology Surgery

Two previously NQF-endorsed measures addressing otolaryngology surgery were reviewed. One measure was not recommended for endorsement and the other measure was deferred.

0360: Esophageal Resection Mortality Rate (IQI 8): (Agency for Healthcare Research and Quality): Not Recommended

Description: Number of inpatient deaths per 1000 discharges with a procedure for esophageal resection; **Measure Type**: Outcome; **Level of Analysis**: Facility; **Setting of Care**: Hospital/acute care facility; **Data Source**: Administrative Claims

This outcome measure has been endorsed since 2008, and is part of AHRQ's set of IQIs. The measure identifies the rate of in-hospital deaths among patients undergoing esophageal resection. The Committee agreed that this was an important outcome to measure and that there is an opportunity for improvement in this area, but expressed concerns about the measure's ability to reliably distinguish meaningful performance differences between hospitals, particularly among smaller facilities. The developer acknowledged this limitation, and noted that the measure is paired with measure 0361 (Esophageal Resection Volume) in part to account for this issue, since volume itself is a strong indicator of quality among facilities that perform low numbers of esophageal resections. The measure did not pass a vote on reliability, and since reliability is a must-pass criterion, the Committee did not evaluate the measure further. However, given the importance of considering mortality and volume together in this instance, the Committee discussed the possibility of a single, combined version of measures 0360 and 0361. The developer noted that there was in fact work being done to support such an approach, and indicated that AHRQ would be open to re-specifying and submitting the measures as a composite.

The Committee also supported this approach, and agreed to defer a decision on measure 0361 until the Committee's next cycle of measure review to allow AHRQ to make the appropriate revisions.

0361: Esophageal Resection Volume (IQI 1): (Agency for Healthcare Research and Quality): Deferred

Description: Number of discharges with a procedure for esophageal resection; **Measure Type**: Structure; **Level of Analysis**: Facility; **Setting of Care**: Hospital/acute care facility; **Data Source**: Administrative claims

This structural measure has been endorsed since 2008, and is part of AHRQ's set of IQIs. Because this measure's companion measure, 0360 (Esophageal Resection Mortality Rate), was not recommended for endorsement, the Committee did not evaluate measure 0361, instead deferring a final decision to allow the developer to combine these two measures into a single composite, which will be submitted and evaluated in the Surgery Standing Committee's next cycle of measure review.

[1] Centers for Disease Control and Prevention (CDC), NCCHS. National Hospital Discharge Survey: 2010 table, Procedures by selected patient characteristics - Number by procedure category and age. Available at http://www.cdc.gov/nchs/data/nhds/4procedures/2010pro4_numberprocedureage.pdf. Last accessed June 2014.

[2] Cullen KA, Hall MJ, Golosinskiy A. Ambulatory Surgery in the United States, 2006. National Health Statistics Reports, No.11, revised Sept 4, 2009. Last accessed March 30, 2015.

[3] CMS. Ambulatory Surgical Center (ASC) Healthcare-Associated Infection (HAI) Initiative Recovery Act – FY 2009 Approvals. Available at http://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/ASC_HAI_MAP.pdf. Last accessed June 2014.

[4] Agency for Healthcare Research and Quality. Users of Public Reports of Hospital Quality: Who, What, Why, and How?: An aggregate analysis of 16 online public reporting Web sites and users' and experts' suggestions for improvement Website. Updated December 2011. Available at http://www.ahrq.gov/professionals/quality-patient-safety/quality-resources/value/pubreportusers/index.html. Last accessed June 2014.

[5] Tsai TC, Joynt KE, Orav EJ, et al. Variation in surgical-readmission rates and quality of hospital care. N Engl J Med. 2013;369(12):1134-1142.

[6] Birkmeyer JD1, Gust C, Dimick JB, et al. Hospital quality and the cost of inpatient surgery in the United States. Ann Surg. 2012; 255(1):1-5.

[7] Qasim M, Andrews RM. Despite overall improvement in surgical outcomes since 2000, income-related disparities persist Health Aff (Millwood). 2013; 32(10):1773-1780.

[8] The National Quality Strategy. http://www.ahrq.gov/workingforquality/. Last accessed June 2014.

[9] AHRQ. National Healthcare Quality Report (NHQR) and National healthcare Disparities Report (NHDR) Website. Available at http://www.ahrq.gov/research/findings/nhqrdr/nhqr13/2013nhqr.pdf. Last accessed May 2014.

[10] Shahian DM, O'Brien SM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 1-Coronary Artery Bypass Grafting Surgery. Ann Thorac Surg 2009 Jul;88:S2-22.

[11] 2011 ACCF/AHA Guideline for Coronary Artery Bypass Graft Surgery: A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. Circulation. 2011;124:e652-e735.

[12] Stone NJ, Robinson JG, Lichtenstein AH et al. 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults. JACC Vol.63, No.25, 2014:2889-934.

[13] O'Brien SM, Shahian DM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 2-Isolated Valve Surgery. Ann Thorac Surg 2009;88:S23-42.

[14] O'Brien SM, Shahian DM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 2-Isolated Valve Surgery. Ann Thorac Surg 2009;88:S23-42.

[15] Shahian DM, O'Brien SM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 3-Valve Plus Coronary Artery Bypass Grafting Surgery. Ann Thorac Surg 2009;88:S43-62.

[16] Shahian DM, O'Brien SM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 1- Coronary Artery Bypass Grafting Surgery. Ann Thorac Surg 2009;88:S2-22.

[17] O'Brien SM, Shahian DM, DeLong ER, et al. Quality Measurement in Adult Cardiac Surgery: Part 2- Statistical Considerations in Composite Measure Scoring and Provider Rating. Ann Thorac Surg 2007;83:S13-26.
[18] O'Brien SM, Shahian DM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 2- Isolated Valve Surgery. Ann Thorac Surg 2009;88:S23-42.
[19] Shahian DM, O'Brien SM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 3-Valve Plus Coronary Artery Bypass Grafting Surgery. Ann Thorac Surg 2009;88:S43-62.
[20] Welke KF, O'Brien SM, Peterson ED, et al. The complex relationship between pediatric cardiac surgical case volumes and mortality rates in a national clinical database. J Thorac Cardiovasc Surg 2009;137:1133-40.
[21] Welke KF, O'Brien SM, Peterson ED, et al. The complex relationship between pediatric cardiac surgical case volumes and mortality rates in a national clinical database. J Thorac Cardiovasc Surg 2009;137:1133-40.

References

[1] Centers for Disease Control and Prevention (CDC), NCCHS. National Hospital Discharge Survey: 2010 table, Procedures by selected patient characteristics - Number by procedure category and age. Available at http://www.cdc.gov/nchs/data/nhds/4procedures/2010pro4_numberprocedureage.pdf. Last accessed June 2014.

[1] Cullen KA, Hall MJ, Golosinskiy A. Ambulatory Surgery in the United States, 2006. National Health Statistics Reports, No.11, revised Sept 4, 2009. Last accessed March 30, 2015.

[1] CMS. Ambulatory Surgical Center (ASC) Healthcare-Associated Infection (HAI) Initiative Recovery Act – FY 2009 Approvals. Available at http://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/ASC_HAI_MAP.pdf. Last accessed June 2014.

[1] Agency for Healthcare Research and Quality. Users of Public Reports of Hospital Quality: Who, What, Why, and How?: An aggregate analysis of 16 online public reporting Web sites and users' and experts' suggestions for improvement Website. Updated December 2011. Available at http://www.ahrq.gov/professionals/quality-patient-safety/quality-resources/value/pubreportusers/index.html. Last accessed June 2014.

[1] Tsai TC, Joynt KE, Orav EJ, et al. Variation in surgical-readmission rates and quality of hospital care. N Engl J Med. 2013;369(12):1134-1142.

[1] Birkmeyer JD1, Gust C, Dimick JB, et al. Hospital quality and the cost of inpatient surgery in the United States. Ann Surg. 2012; 255(1):1-5.

[1] Qasim M, Andrews RM. Despite overall improvement in surgical outcomes since 2000, income-related disparities persist Health Aff (Millwood). 2013; 32(10):1773-1780.

[1] The National Quality Strategy. http://www.ahrq.gov/workingforquality/. Last accessed June 2014.

[1] AHRQ. National Healthcare Quality Report (NHQR) and National healthcare Disparities Report (NHDR) Website. Available at http://www.ahrq.gov/research/findings/nhqrdr/nhqr13/2013nhqr.pdf. Last accessed May 2014.

[1] Shahian DM, O'Brien SM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 1-Coronary Artery Bypass Grafting Surgery. Ann Thorac Surg 2009 Jul;88:S2-22.

[1] 2011 ACCF/AHA Guideline for Coronary Artery Bypass Graft Surgery: A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. Circulation. 2011;124:e652-e735.

[1] Stone NJ, Robinson JG, Lichtenstein AH et al. 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults. JACC Vol.63, No.25, 2014:2889-934.

[1] O'Brien SM, Shahian DM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 2-Isolated Valve Surgery. Ann Thorac Surg 2009;88:S23-42.

[1] O'Brien SM, Shahian DM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 2-Isolated Valve Surgery. Ann Thorac Surg 2009;88:S23-42.

[1] Shahian DM, O'Brien SM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 3-Valve Plus Coronary Artery Bypass Grafting Surgery. Ann Thorac Surg 2009;88:S43-62.

[1] Shahian DM, O'Brien SM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 1- Coronary Artery Bypass Grafting Surgery. Ann Thorac Surg 2009;88:S2-22.

[1] O'Brien SM, Shahian DM, DeLong ER, et al. Quality Measurement in Adult Cardiac Surgery: Part 2- Statistical Considerations in Composite Measure Scoring and Provider Rating. Ann Thorac Surg 2007;83:S13-26.

[1] O'Brien SM, Shahian DM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 2- Isolated Valve Surgery. Ann Thorac Surg 2009;88:S23-42.

[1] Shahian DM, O'Brien SM, Filardo G, et al. The Society of Thoracic Surgeons 2008 Cardiac Surgery Risk Models: Part 3-Valve Plus Coronary Artery Bypass Grafting Surgery. Ann Thorac Surg 2009;88:S43-62.

[1] Welke KF, O'Brien SM, Peterson ED, et al. The complex relationship between pediatric cardiac surgical case volumes and mortality rates in a national clinical database. J Thorac Cardiovasc Surg 2009;137:1133-40.

[1] Welke KF, O'Brien SM, Peterson ED, et al. The complex relationship between pediatric cardiac surgical case volumes and mortality rates in a national clinical database. J Thorac Cardiovasc Surg 2009;137:1133-40.

Appendix A: Details of Measure Evaluation

Measures Recommended

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

0115 Risk-Adjusted Surgical Re-exploration: Recommended

Submission | Specifications

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

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

Denominator Statement: All patients undergoing isolated CABG

Exclusions: N/A

Adjustment/Stratification: Statistical risk model

Level of Analysis: Clinician : Group/Practice, Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Electronic Clinical Data: Registry

Measure Steward: The Society of Thoracic Surgeons

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

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

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

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

Rationale:

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

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

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

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

Rationale:

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

0115 Risk-Adjusted Surgical Re-exploration: Recommended
participants subjected to an audit, there was 95.73 percent agreement between information submitted to the registry by participants and information re-abstracted by independent auditors. • To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance. • Testing results provided by the developer showed that registry participants in low, middle and high observed rates of post-operative re-exploration rates in one time period (July 2012 – June 2013) had correspondingly low, mid, and high rates of re-exploration in the following period (July 2013 – June 2014). • The measure is risk adjusted and the risk factors are described in detail. • There are no exclusions for the measure. • The Committee determined that the measure has been tested at the data element and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.
3. Feasibility: H-15; M-6; L-1; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 4d. Data collection strategy can be implemented)* Rationale: • The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care. • The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications. • The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed. • The committee was satisfied with the measure's feasibility.
4. Usability and Use: H-18; M-4; L-0; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)* Rationale: • The developer reports that the measure is publicly reported through the STS public reporting program and through Consumer Reports. It is also used for quality improvement including with benchmarking. • Overall rates of re-operation have been steadily declining with a reported rate in the most recent period reported at 2.3 percent. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • The related measures are component measures of the NQF-endorsed CABG composite.
Standing Committee Recommendation for Endorsement: Y-22; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0118 Anti-lipid Treatment at Discharge: Recommended

Submission | Specifications

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

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

Denominator Statement: All patients undergoing isolated CABG

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

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Clinician: Group/Practice, Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Process

Data Source: Electronic Clinical Data : Registry

Measure Steward: The Society of Thoracic Surgeons

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

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

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

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

Rationale:

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

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

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

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

Rationale:

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

0118 Anti-lipid Treatment at Discharge: Recommended
• To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance. • Testing results provided by the developer showed that registry participants in low, middle and high observed rates of use of lipid-lowering medication in one time period (July 2012 – June 2013) had correspondingly low, mid, and high rates of use of the medication in the following period (July 2013 – June 2014). • The measure is not risk adjusted. • The Committee determined that the measure has been tested at the data element and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.
3. Feasibility: H-15; M-6; L-1; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)* Rationale: • The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care. • The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications. • The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed. • The committee was satisfied with the measure's feasibility.
4. Usability and Use: H-18; M-4; L-0; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)* Rationale: • The developer reports that the measure is publicly reported through the STS public reporting program and through Consumer Reports. It is also used for quality improvement including with benchmarking. • Overall rates of statin use have been steadily increasing with a reported rate in the most recent period reported at 95.5 percent. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • Twelve related NQF-endorsed STS measures are listed, of which 10 are components of the STS CABG Composite Score that is also listed. It is noted that all are harmonized.
Standing Committee Recommendation for Endorsement: Y-21; N-1
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

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

Submission | Specifications

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

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

Denominator Statement: All patients undergoing isolated AVR surgery

Exclusions: N/A

Adjustment/Stratification: Statistical risk model

Level of Analysis: Clinician : Group/Practice, Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Electronic Clinical Data : Registry

Measure Steward: The Society of Thoracic Surgeons

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

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

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

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

Rationale:

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

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

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

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

Rationale:

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

0120 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR): Recommended
score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.
3. Feasibility: H-15; M-6; L-1; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Data collection strategy can be implemented)* Rationale: • The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care. • The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications. • The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed. • The committee was satisfied with the measure's feasibility.
4. Usability and Use: H-18; M-4; L-0; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement) 4c. Susceptibility to inaccuracies/ unintended consequences identified* Rationale: • The developer reports that the measure is publicly reported through the STS public reporting program and through Consumer Reports. It is also used for quality improvement including with benchmarking. • Overall rates of AVR operative mortality have been steadily declining with a reported rate in the most recent period reported at 2.2 percent. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • The related measures are NQF-endorsed measures developed by STS. The developer notes they are harmonized.
Standing Committee Recommendation for Endorsement: Y-21; N-1
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0121 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement: Recommended
Submission | Specifications
Description: percent of patients aged 18 years and older undergoing MV replacement who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Numerator Statement**: Number of patients aged 18 years and older undergoing MV replacement who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Denominator Statement**: All patients undergoing isolated MV replacement surgery

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

Exclusions: N/A

Adjustment/Stratification: Statistical risk model

Level of Analysis: Clinician : Group/Practice, Facility

Setting of Care: Clinician : Group/Practice, Facility

Type of Measure: Outcome

Data Source: Electronic Clinical Data : Registry

Measure Steward: The Society of Thoracic Surgeons

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

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

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

1a. Evidence: Y-20; N-0; 1b. Performance Gap: H-10; M-11; L-0; I-0

Rationale:

- The Committee noted that a lengthy discussion of evidence related to outcome measures for cardiac surgery, also relevant to this measure, had been discussed during the review of measure 0115, which had preceded this one. Accordingly, the Committee moved to immediate vote on this criterion.
- Mortality rates for two time periods were noted: 1) the 48 month period ending June 2011 with an average rate of 5.85 percent and a range of 2.7 to 12.73 percentand 2) the 36 month period ending in June 2014 with an average of 5.26 percent and a range of 5.26 to 11.56 percent. The Committee also noted a performance gap related to gender.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

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

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

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

Rationale:

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

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

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

Rationale:

0121 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement: Recommended
• The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care. • The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications. • The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed. • The committee was satisfied with the measure's feasibility.
4. Usability and Use: H-18; M-4; L-0; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement) 4c.Susceptibility to inaccuracies/ unintended consequences identified* Rationale: • The developer reports that the measure is used for quality improvement including with benchmarking and will be publicly reported through the STS public reporting program and through Consumer Reports in 2016. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • The related measures identified are NQF-endorsed measures developed by STS. The developer notes they are harmonized.
Standing Committee Recommendation for Endorsement: Y-22; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0122 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement + CABG Surgery: Recommended
Submission | Specifications
Description: percent of patients aged 18 years and older undergoing combined MV Replacement and CABG who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Numerator Statement**: Number of patients aged 18 years and older undergoing combined MV Replacement and CABG who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Denominator Statement**: All patients undergoing combined MV Replacement + CABG **Exclusions**: N/A **Adjustment/Stratification**: Statistical risk model **Level of Analysis**: Clinician: Group/Practice, Facility **Setting of Care**: Hospital/Acute Care Facility **Type of Measure**: Outcome **Data Source**: Electronic Clinical Data: Registry

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

Measure Steward: The Society of Thoracic Surgeons

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

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

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

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

Rationale:

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

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

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

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

Rationale:

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

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

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

Rationale:

- The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care.

0122 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement + CABG Surgery: Recommended
• The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications. • The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed. • The committee was satisfied with the measure's feasibility.
4. Usability and Use: H-18; M-4; L-0; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability, 4b. Quality Improvement), 4c. Susceptibility to inaccuracies/ unintended consequences identified* Rationale: • The developer reports that the measure is used for quality improvement including with benchmarking and will be publicly reported as part of the STS MV surgery + CABG composite, developed in 2014, through the STS public reporting program and Consumer Reports in 2016. • Overall rates of operative mortality for this measure have been steadily declining with a reported rate in the most recent period of 2.2 percent. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. **Related and Competing Measures** • The nine measures identified as related are NQF-endorsed measures developed by STS. The developer notes they are harmonized.
Standing Committee Recommendation for Endorsement: Y-19; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0123 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery: Recommended
Submission | Specifications
Description: percent of patients aged 18 years and older undergoing combined AVR and CABG who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Numerator Statement**: Number of patients aged 18 years and older undergoing combined AVR and CABG who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure. **Denominator Statement**: All patients undergoing combined AVR + CABG **Exclusions**: N/A **Adjustment/Stratification**: Statistical Risk Model **Level of Analysis**: Clinician: Group/Practice, Facility **Setting of Care**: Hospital/Acute Care Facility **Type of Measure**: Outcome **Data Source**: Electronic Clinical Data: Registry **Measure Steward**: The Society of Thoracic Surgeons

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

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

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

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

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

Rationale:

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

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

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

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

Rationale:

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

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

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

Rationale:

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

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

- The committee was satisfied with the measure's feasibility.

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

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

Rationale:

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

5. R**elated and Competing M**easures

- Nine related measures are identified. All are STS developed measures. The developer notes that all are harmonized.

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

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

-

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

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

9. Appeals

0130 Risk-Adjusted Deep Sternal Wound Infection Rate: Recommended

Submission | Specifications

Description: percent of patients aged 18 years and older undergoing isolated CABG who develop mediastinitis or deep sternal wound infection within 30 days postoperatively

Numerator Statement: Number of patients aged 18 years and older undergoing isolated CABG who develop mediastinitis or deep sternal wound infection within 30 days postoperatively

Denominator Statement: All patients undergoing isolated CABG

Exclusions: N/A

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility, Clinician : Group/Practice

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Electronic Clinical Data : Registry

Measure Steward: The Society of Thoracic Surgeons

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

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

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

1a. Evidence: Y-21; N-0; 1b. Performance Gap: H-8; M-12; L-1; I-0

Rationale:

- The Committee reiterated that a lengthy discussion of evidence related to outcome measures for cardiac

surgery had been discussed during the review of measure 0115, which had preceded this one. Accordingly, the Committee moved to immediate vote on this criterion.

- Mortality rates for two time periods, July 2012 – June 2013 and July 2013 – June 2014 were noted. In the earlier time period, the average rate was 0.36 percent with a range of 0.14to 2.94 percent. In the more recent time period, the average rate was 0.28 percent with a range from 0.15 to 1.32 percent. STS participant-specific infection rates for the measure demonstrate variation ranging from 0 percent in the highest performing hospitals/groups to 1.1 percent in lowest performing hospitals/groups for a 12 month period ending in June 2014.
- The Committee noted that while the rate of occurrence of post-operative deep sternal wound infection/mediastinitis is low, it is an undesirable outcome that carries significant burden in terms of patient impact as well as cost and warrants continued reporting.
- The Committee noted that it may not be discriminatory as a quality improvement measure but is very important for public accountability.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

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

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

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

Rationale:

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

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

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

Rationale:

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

0130 Risk-Adjusted Deep Sternal Wound Infection Rate: Recommended

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

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

Rationale:

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

5. Related and Competing Measures

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

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

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

-

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

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

9. Appeals

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

Submission | Specifications

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

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

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

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

Adjustment/Stratification: No risk adjustment or risk stratification

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

Setting of Care: Ambulatory Care : Clinician Office/Clinic

Type of Measure: Process

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

Measure Steward: Centers for Medicare & Medicaid Services

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

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

(1a. Evidence 1b. Performance Gap)

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

Rationale:

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

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

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

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

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

Rationale:

- The measure is specified for analysis at the individual clinician and group/practice levels, and is intended for use in ambulatory care (clinician office/clinic) settings. The measure is not risk-adjusted and patients may be excluded from the denominator if a beta blocker was not administered due to documented medical reasons (e.g., not indicated, contraindicated, other medical reason).
- The Committee agreed that reliability of the measure was demonstrated, with reliability scores of 0.85 with a 1.0 max from the registry reporting and 0.99 from claims-based reporting.
- To test reliability and validity of the data elements, the developers calculated the rate of agreement between the data as assessed by independent reviewers and the data as reported in claims (i.e., inter-rater reliability testing). The developers report that documentation and reporting practices related to this clinical action (administration of a beta blocker 24 hrs prior to CABG surgery) created some challenges for their validity assessment. The initial analysis, focused on records from physicians' outpatient practices, resulted in an inter-rater agreement rate of 64.2 percent. Further analysis revealed that inter-rater agreement was significantly higher when hospital medical record documentation was present (when both a Medication Administration Report (MAR) and Operating Room (OR) report was available, the agreement rate increased to 96.9 percent).
- The Committee agreed that the measure is valid and reliable based on the reporting cohort but noted the low reporting rate and lack of clear understanding of why only 30 percent of eligible providers reported the measure.
- The Committee requests that, as part of providing any new evidence at the next maintenance cycle, that the developer include discussion of the place of amiodarone in the measure.

3. Feasibility: H-2; M-16; L-4; I-0

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

Rationale:

- The measure is calculated based on data from administrative claims or clinical registries, using CPT® II codes to identify the numerator (patients who received pre-operative beta blockers) and denominator (patients undergoing CABG procedures) populations.
- Some concerns from the Committee were raised about challenges related to involving specialists in the

0236 Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery: Recommended
PQRS process. • The Committee was generally satisfied with the feasibility of the measure.
4. Usability and Use: H-2; M-16; L-4; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability, 4b. Quality Improvement), 4c. Susceptibility to inaccuracies/ unintended consequences identified* Rationale: • The developer shared that the measure was first implemented in the PQRS program in 2007 in an effort for specialists to report measures that address relevant clinical strategy. Since then, the measure has been expanded to include use by anesthesiologists. • The measure is publicly reported. • Average performance on the measured has improved from 91 percent in 2009 to 95.9 percent in 2012 while eligible providers reporting have changed by just over 1 percent. • The Committee was generally satisfied with the use and usability of the measure.
5. Related and Competing Measures • This measure is similar to 0127 Preoperative Beta Blockade, percent of patients aged 18 years and older undergoing isolated CABG who received beta blockers within 24 hours preceding surgery. • However, with different care setting, level of analysis and data source, it is appropriate to have both measures. The Committee has asked that the developers of the two measures discuss whether there is opportunity for harmonization of the measures.
Standing Committee Recommendation for Endorsement: Y-17; N-5
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0354 Hip Fracture Mortality Rate (IQI 9): Recommended
Submission | Specifications
Description: In-hospital deaths per 1,000 hospital discharges with hip fracture as a principal diagnosis for patients ages 65 years and older. Excludes periprosthetic fracture discharges, obstetric discharges, and transfers to another hospital. [NOTE: The software provides the rate per hospital discharge. However, common practice reports the measure as per 1,000 discharges. The user must multiply the rate obtained from the software by 1,000 to report in-hospital deaths per 1,000 hospital discharges.] **Numerator Statement**: Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator. **Denominator Statement**: Discharges, for patients ages 65 years and older, with a principal ICD-9-CM diagnosis code for hip fracture. **Exclusions**: Exclude cases: • with any-listed ICD-9-CM diagnosis codes for periprosthetic fracture • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium) • with missing discharge disposition (DISP=missing), gender (SEX= missing), age (AGE=missing), quarter

0354 Hip Fracture Mortality Rate (IQI 9): Recommended

(DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing)

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Administrative claims

Measure Steward: Agency for Healthcare Research and Quality

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

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

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

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

Rationale:

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

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

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

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

Rationale:

- The developer informed the Committee that this measure is based on administrative data that are collected by state health data organizations and compiled by the Agency for Healthcare Research and Quality (AHRQ), made available to researchers and others.
- The developer noted that the measure is focused on the inpatient setting because many users of AHRQ's Quality Indicators only have access to inpatient data; data on post-discharge follow-up of patients is limited because of constraints on hospitals' ability to collect that information.
- Committee members noted that accurately identifying hip fracture patients can be difficult due to challenges in assessing the level of a fracture.
- Committee members also noted that the measure includes open fractures, which imply high-energy (i.e., trauma-induced) fractures, which may not be the proper intent of a measure applying to patients 65 and older.
- The developer pointed out that whether a fracture is open or closed is a factor included in the risk-adjustment model.
- To demonstrate reliability, the developer provided results of a signal-to-noise analysis of the measure score, which tests reliability by estimating the extent to which variation in scoring is caused by real differences in performance ('signal') as opposed to measurement error ('noise').
- Some Committee members suggested that the overall reliability score of 0.43 reported by the developer appeared low compared to some other publicly-reported measures, raising concerns about the measure's ability to distinguish meaningful performance differences among hospitals.
- The developer acknowledged that the reliability testing results were not optimal, but noted that this is true of many endorsed measures, and characteristic of the type of reliability testing used (i.e., a signal-to-noise analysis). In addition, the developer explained AHRQ's method of 'smoothing' performance rates for smaller-volume hospitals by shrinking them towards the average performance rate, effectively

adjusting the score for reliability.

- Committee members generally agreed that reliability testing results were adequate, while acknowledging that reliability was lower for smaller hospitals.
- Committee members also observed that the measure has been endorsed and in use since 2008, and it appears to have driven improvement (rates have gone down over time); moreover, we have not seen a substantial increase in work-arounds or 'gaming' of the measure in practice, which suggests a certain level of reliability and validity.
- To demonstrate validity of the measure score, the developers facilitated a systematic assessment of face validity by an expert panel, utilizing a modified Delphi process to conduct the assessment.
- While acknowledging this measure's potential utility for internal quality improvement and surveillance of national trends, some Committee members questioned whether the measure provides performance results that are valid for comparative purposes across hospitals, raising concerns about the adequacy of the measure's risk adjustment and the accuracy of administrative claims data.
- Committee members also noted that the measure is not focused solely on surgery patients, also including hip-fracture patients who are managed medically. This was a cause for concern for some Committee members, who suggested that mortality may be a more valid indicator of quality for patients who have chosen to have an operation than for patients who do not undergo surgery, since patients who decline surgery may have other treatment goals (potentially including comfort/palliative care).
- There was also some concern that hospitals may 'game' the measure by transferring patients at higher risk for mortality into hospice in order to improve the hospital's rate.
- The developer noted that the potential for gaming underpinned their decision to include patients whose hip fractures are treated medically, so that providers would not be incentivized to discourage surgery for higher-risk patients, adding that there has been no significant change in trends with regard to length of hospital stay or discharge distribution over the most recent period of observation, suggesting that such unintended consequences are probably not an issue.
- Other Committee members stressed the need to ensure that the perfect is not the enemy of the good, suggesting that despite its flaws, the measure is incentivizing providers to move in the right direction.

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

(Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)

Rationale:

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

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

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

Rationale:

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

0354 Hip Fracture Mortality Rate (IQI 9): Recommended
5. Related and Competing Measures • No related or competing measures noted.
Standing Committee Recommendation for Endorsement: Y-20; N-2
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

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

mortality (although results were not statistically signification) and that anti-platelet and statin prescription at discharge conferred an additive effect that was associated with increased 5-year mortality.
- The Committee discussed how the supporting literature arrives at different conclusions but in aggregate agreed that the evidence supports use of these agents to reduce complications and is widely believed to work among vascular surgeons.
- Data submitted by the developer indicates that overall performance on this measure by the Vascular Quality Initiative (VQI) registry participants is 86 percent. Developers also note that "> 20 percent did not use periop anti-platelet in 80 percent of patients, and 50 percent did not achieve 90 percent". The Committee generally agreed that there is opportunity for improvement.
- The Committee asked the developer to provide the percentage of vascular surgeons and the percentage of vascular operations that are being performed in the United States that are part of this database.

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

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

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

Rationale:

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

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

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

Rationale:

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

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

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

Rationale:

- The measure is included in the Vascular Quality Initiative for use in internal quality improvement and benchmarking. VQI participants receive benchmark reports to see how they are performing relative to their peers and to the quality goals set for the measure of 90 percent anti-platelet uses for carotid endarterectomy procedures.
- The Committee was satisfied with the use and usability of this measure.

5. Related and Competing Measures

0465 Perioperative Anti-Platelet Therapy for Patients Undergoing Carotid Endarterectomy: Recommended
• This measure is related to 0116 Anti-Platelet Medication at Discharge, percent of patients aged 18 years and older undergoing isolated CABG who were discharged on anti-platelet medication. • NQF staff asked the developers to compare "Anti-platelet therapy" as defined by the measures to identify any differences and opportunities for harmonization. There was general consensus among the Committee for having both measures. The STS Adult Database version 2.81 that went live on 7/1/2014 captures the medications included in Measure 0116.
Standing Committee Recommendation for Endorsement: Y-23; N-1
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

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

0533 Postoperative Respiratory Failure Rate (PSI 11): Recommended

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

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

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

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

• MDC 4 (diseases/disorders of respiratory system)

• MDC 5 (diseases/disorders of circulatory system)

• MDC 14 (pregnancy, childbirth, and puerperium)

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

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome

Data Source: Administrative claims

Measure Steward: Agency for Healthcare Research and Quality

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

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

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

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

Rationale:

- The developer states that this measure is intended to identify adult patients with a clinically significant adverse event that is at least partially preventable: acute respiratory failure as a secondary diagnosis acquired in the hospital.
- Respiratory failure—usually defined as unplanned intubation or prolonged ventilation—is considered to be the most serious of the respiratory complications because of its high morbidity, mortality, and associated costs.
- The developer notes that hospitals can decrease postoperative respiratory failure rates by adopting and following guidelines for assessing perioperative pulmonary risk and implementing recommended preventive strategies for high-risk patients.
- Data provided by the developer show that the total US risk-adjusted rate for postoperative respiratory failure in 2012 was 10.1 per 1,000 surgical patients, representing an estimated total of 24,066 events. This rate has increased slightly over time, from 8.2 in 2008, 8.3 in 2009, 8.6 in 2010, and 9.2 in 2011.
- Committee members underscored this outcome's importance by noting that it is also a marker for further poor outcomes.
- The Committee was satisfied that there is a sufficient rationale for measuring postoperative respiratory failure and that there is an opportunity for improvement in this area.

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

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

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

Rationale:

- This indicator excludes the evaluation of patients with major respiratory or circulatory disorders and limits the assessment to patients who undergo an elective surgical procedure.
- The measure is calculated based on discharge data from administrative claims, using ICD-9-CM diagnosis codes to identify the numerator (patients experiencing postoperative respiratory failure) and denominator (adult patients undergoing elective surgical procedures) populations.
- A signal-to-noise analysis of the measure resulted in an overall reliability score of 0.744 (on a scale of 0 to

0533 Postoperative Respiratory Failure Rate (PSI 11): Recommended

1), which Committee members agreed showed sufficient reliability.
- However, Committee members noted that reliability decreased as hospital size decreased.
- The Committee discussed whether, from a public reporting perspective, it would be appropriate to refrain from reporting rates for low-reliability (i.e., low-volume) hospitals, instead reporting only that those facilities' limited volume does not allow for a reportable rate to be calculated.
- It was noted that some users of the measure do indeed take this approach, and that the AHRQ software supports implementation of a reliability threshold.
- Some members of the Committee expressed concerns about whether the measure's listed exclusions were too broad, potentially leading to excessive and/or inappropriate exclusions.
- The developers noted that they shared the Committee's concerns about the breadth of the exclusion criteria, and welcomed input from Committee members on how to improve the measure in this respect.
- The developer also clarified that the listed MDC codes are only excluded when they are the patient's principal diagnosis, meaning that the condition is not a co-morbidity or a complication of care but was the primary reason for admission to the hospital.
- The developer added that obstetric patients are excluded because of differences in coding rules for these patients.
- Some Committee members suggested incorporating certain exclusion criteria into the risk-adjustment model, or alternatively, creating separate measures focused on the excluded groups.
- Committee members noted that there have been instances of apparent improvements that turn out to be driven more by changes in documentation and coding practices than actual decreases in respiratory events.
- The developers acknowledged that limitations of diagnosis codes and administrative claims data do have an impact on the measure's validity, but noted that an audit study suggested that the measure has substantial positive predictive value.
- Committee members noted that some level of granularity must be sacrificed in the name of feasible data collection, and suggested that useful information can still be gleaned from measures that may seem like blunt instruments.
- The Committee noted that further assessment of these potential threats to validity would be helpful in evaluating this measure during its next maintenance review.

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

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

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

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

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

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

5. Related and Competing Measures
- No related or competing measures noted.

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

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

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

0533 Postoperative Respiratory Failure Rate (PSI 11): Recommended
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0696 The STS CABG Composite Score: Recommended
Submission | Specifications
Description: The STS CABG Composite Score comprises four domains consisting of 11 individually NQF-endorsed cardiac surgery measures: Domain 1) Absence of Operative Mortality – Proportion of patients (risk-adjusted) who do not experience operative mortality. Operative mortality is defined as death during the same hospitalization as surgery or after discharge but within 30 days of the procedure; Domain 2) Absence of Major Morbidity – Proportion of patients (risk-adjusted) who do not experience any major morbidity. Major morbidity is defined as having at least one of the following adverse outcomes: 1. reoperations for any cardiac reason, 2. renal failure, 3. deep sternal wound infection, 4. prolonged ventilation/intubation, 5. cerebrovascular accident/permanent stroke; Domain 3) Use of Internal Mammary Artery (IMA) – Proportion of first-time CABG patients who receive at least one IMA graft; Domain 4) Use of All Evidence-based Perioperative Medications – Proportion of patients who receive all required perioperative medications for which they are eligible. The required perioperative medications are: 1. preoperative beta blockade therapy, 2. discharge anti-platelet medication, 3. discharge beta blockade therapy, and 4. discharge anti-lipid medication. Domain Score Calculation: The STS CABG Composite Score comprises four domains consisting of eleven individual measures: 1. Absence of Operative Mortality - 0119 Risk-Adjusted Operative Mortality for CABG 2. Absence of Major Morbidity, scored any-or-none - 0131 Risk-Adjusted Postoperative Stroke/Cerebrovascular Accident, 0115 Risk-Adjusted Postoperative Surgical Re-exploration, 0130 Risk-Adjusted Postoperative Deep Sternal Wound Infection, 0114 Risk-Adjusted Postoperative Renal Failure, and 0129 Risk-Adjusted Postoperative Prolonged Intubation (Ventilation) 3. Use of Internal Mammary Artery (IMA) - 0134 Use of IMA in CABG 4. Use of All Evidence-based Perioperative Medications, scored all-or-none - 0127 Preoperative Beta Blockade, 0117 Beta Blockade at Discharge, 0116 Anti-Platelet Medication at Discharge, and 0118 Anti-Lipid Treatment Discharge **Exclusions**: Participants with fewer than 10 isolated CABG procedures in the patient population or more than 5 percent missing data on any of the five NQF-endorsed process measures **Adjustment/Stratification**: Statistical Risk Model **Level of Analysis**: Clinician: Group/Practice, Facility **Setting of Care**: Hospital/Acute Care Facility **Type of Measure**: Composite **Data Source**: Electronic Clinical Data: Registry **Measure Steward**: The Society of Thoracic Surgeons
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015] **1. Importance to Measure and Report: The measure meets the Importance criteria** *(1a. Evidence: 1b. Performance Gap: 1d: Composite)* 1a. Evidence: Y-18; N-1; 1b. Performance Gap: H-10; M-8; L-0; I-0; 1c. Composite: H-16; M-3; L-0; I-0 Rationale: • This composite measure, originally endorsed in 2011, includes 11 NQF-endorsed measures - 1 measure of mortality, 5 measures of morbidity, 1 measure of use of internal mammary artery (IMA), and 4 measures of use of evidence-based perioperative mortality.

0696 The STS CABG Composite Score: Recommended

- The developer notes that the composite provides a more comprehensive measure of overall performance and quality than possible with a mortality measure alone.
- The reported mean composite score for four "harvests" during time periods from July 2012 – June 2013 and July 2013 – June 2014 are 0.967 (latest) with a range from 0.923 to 0.987. Mean scores for the remaining three "harvests" are 0.965, 0.965, and 0.964.
- The Committee agreed the composite meets the criterion of importance.

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

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

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

Rationale:

- The mortality and morbidity measures that are included in the measure are risk adjusted. Exclusions for the measure are those within the individual measures included in the composite – use of IMA and the four medication measures. There are no exclusions for the morbidity and mortality measures.
- Each of the four domains of the composite is scored and an overall composite score is created from the four domain scores. The composite scoring and provider rating was described in detail.
- In response to the Committee's questions regarding the composite construction, weighting, and score calculation, developers provided detail about the aggregation method for the composite and the method of arriving at a weighted average of the domain scores. Specific detail regarding the model was provided.
- The Committee noted that the model used for the measure is appropriate.
- Reliability testing was conducted using a signal-to-noise ratio with mean reliability of 0.71 in institutions with 50 or more operations and 0.72 in those with 100 or more operations.
- To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance.
- The Committee determined that the measure has been tested using appropriate methods and scope with adequate results meeting requirements for validity and reliability.

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

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

Rationale:

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

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

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

Rationale:

- The developer reports that the measure is publicly reported through the STS public reporting program and through Consumer Reports. It is also used for quality improvement including with benchmarking.
- The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients.
- The Committee was satisfied with the measure's usability.

5. Related and Competing Measures

- The 20 related measures identified are NQF-endorsed measures developed by STS, 11 of which are

0696 The STS CABG Composite Score: Recommended
component measures of the CABG composite. The developer indicates they are harmonized.
Standing Committee Recommendation for Endorsement: Y-18; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

0732 Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories: Recommended
Submission | Specifications
Description: Surgical volume for pediatric and congenital heart surgery: total programmatic volume and programmatic volume stratified by the 5 Society of Thoracic Surgeons - European Association for Cardio-Thoracic Surgery Congenital Heart Surgery Mortality Categories (STAT Mortality Categories), a multi-institutional validated complexity stratification tool **Numerator Statement**: 1) Total number of pediatric and congenital cardiac surgery operations and 2) number of pediatric and congenital cardiac surgery operations in each of the strata of complexity specified by the 5 Society of Thoracic Surgeons - European Association for Cardio-Thoracic Surgery Congenital Heart Surgery Mortality Categories (STAT Mortality Categories), a multi-institutional validated complexity stratification tool **Denominator Statement**: N/A **Exclusions**: N/A **Adjustment/Stratification**: No risk adjustment or risk stratification **Level of Analysis**: Facility, Clinician : Group/Practice **Setting of Care**: Hospital/Acute Care Facility **Type of Measure**: Structure **Data Source**: Electronic Clinical Data : Registry **Measure Steward**: The Society of Thoracic Surgeons
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015] **1. Importance to Measure and Report: The measure meets the Importance criteria** *(1a. Evidence: 1b. Performance Gap)* 1a. Evidence: H-9; M-7; L-4; I-0; 1b. Performance Gap: H-10; M-8; L-2; I-0 Rationale: • This structure measure is paired with an operative mortality measure that is stratified by the 5 STAT categories to enable understanding of pediatric and congenital heart surgery that neither can provide alone. • The developer reported that papers using data from the STS Congenital Heart Surgery Database show that there is a relationship between volume and outcome that is amplified at high-complexity surgeries and that high volume centers tend to perform better, especially the more complex surgeries though there are low volume centers that do achieve excellent results. • The developer reported that from 1998 until 2014, discharge mortality and operative morbidity across the 5 STAT categories has declined each year, most notably in the most complex of the five categories. During the period that the measures have been in place, participation in the registry by eligible providers has increased from some 60 – 70 percent to 95 percent. • The Committee agreed that the variability indicated by the 5 percent of surgeries not now captured

represents the absence of important data given patient population involved and the information it provides that can be used for patient decision making and public accountability.
- The measure, with the companion mortality measure, gives hospitals a way to view and track outcomes within and across the 5 complexity levels.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

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

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

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

Rationale:

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

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

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

Rationale:

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

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

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

Rationale:

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

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

5. Related and Competing Measures

- Four related measures are identified. Three are STS measures, one is the mortality measure with which this measure is paired. The fourth measure is 0339, a pediatric heart surgery mortality measure based on administrative data that uses a risk-adjustment classification – RACHS-1. Its companion volume measure, 0340, also uses administrative data. The developers will be asked to continue harmonization effort as ICD-10 is implemented.

Standing Committee Recommendation for Endorsement: Y-18; N-2

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

-

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

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

9. Appeals

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

Submission | Specifications

Description: percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure, stratified by the five STAT Mortality Levels, a multi-institutional validated complexity stratification tool

Numerator Statement: Number of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure, stratified by the five STAT Mortality Levels, a multi-institutional validated complexity stratification tool

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

Exclusions: N/A

Adjustment/Stratification: Stratification by risk category/subgroup

Level of Analysis: Clinician: Group/Practice, Facility

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Outcome (Paired with 0732 Volume)

Data Source: Electronic Clinical Data: Registry

Measure Steward: The Society of Thoracic Surgeons

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

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

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

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

Rationale:

- This mortality measure is paired with volume measure that is stratified by the 5 STAT categories to enable understanding of pediatric and congenital heart surgery that neither can provide alone.
- The developer noted that the literature shows there is substantial variation across institutions in each of the 5 STAT categories, especially in levels 4 and 5.

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

- The Committee pointed out that the measure captures neonates, infants, and patients (pediatric and adult) who have congenital repair facilitating evaluation of risk specific to population and procedure that can lead to improvement in improved patient selection, surgical technique and post-operative care to avoid mortality.
- The Committee noted that the current mortality rate of 3.4 percent may have greatest value for public accountability.
- The developer noted that participants receive the data using a four-year window and a one-year (most recent) window to better identify and address outliers.
- The Committee noted mortality rates in Category 1 in July 2010 – June 2011 was 0.75 percent compared to July 2013 – June 2014 at 0.38 percent and for Category 5 in the same time periods as 18.8 percent compared to 12.75 percent demonstrating improvement over time.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

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

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

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

Rationale:

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

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

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

Rationale:

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

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

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

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

Rationale:

- The developer reported that the measure is now in the first round of public reporting, which began in January 2015, for the 23 percent of database participants who enrolled in the STS public reporting program. It is anticipated that public reporting through Consumer Reports will follow. It is also used for quality improvement including with benchmarking.
- Public reporting of the measure provides mortality for each of the five STAT categories, with volume in each of the five categories captured by the companion measure, represented by an observed to expected ratio and risk adjusted mortality.
- In discussing burden of data collection, the developer noted that data is entered electronically so only those fields that are relevant present themselves as they are triggered by data entry. A Committee member commented that the maximum amount of time required at his facility is about 20 minutes per operation.
- The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients.
- The Committee was satisfied with the measure's usability.

5. Related and Competing Measures

- Four related measures are identified. Three are STS measures, one is the volume measure with which this measure is paired. One is a new pediatric and congenital heart surgery risk-adjusted mortality measure. The fourth measure is 0339, a pediatric heart surgery mortality measure based on administrative data that uses a risk-adjustment classification – RACHS-1. Its companion volume measure, 0340, also uses administrative data. The developer noted that the list of eligible procedures has been cross-mapped to both CPT and ICD-9 codes making it possible to collect the data for the measure outside the registry. The developers will be asked to continue harmonization effort as ICD-10 is implemented.

Standing Committee Recommendation for Endorsement: Y-21; N-0

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

-

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

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

9. Appeals

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

Submission | Specifications

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

(This measure applies to the procedure of MV repair, regardless of approach)

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

Denominator Statement: All patients undergoing isolated MV repair surgery

Exclusions: N/A

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility, Clinician : Group/Practice

Setting of Care: Hospital/Acute Care Facility

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

Type of Measure: Outcome

Data Source: Electronic Clinical Data : Registry

Measure Steward: The Society of Thoracic Surgeons

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

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

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

1a. Evidence: Y-21; N-0; 1b. Performance Gap: H-6; M-15; L-0; I-0

Rationale:

- The Committee reiterated that a lengthy discussion of evidence related to outcome measures for cardiac surgery had been discussed during the review of measure 0115, which had preceded this one. Accordingly, the Committee moved to immediate vote on this criterion.
- Mortality rates for two time periods, July 2008 – June 2011 and July 2011 – June 2014 were noted. In the earlier time period, the average rate was 1.47 percent with a range of 0.46 to 5.09 percent. In the more recent time period, the average rate was 1.28 percent with a range from 0.65 to 2.83 percent. STS participant-specific mortality rates for the measure demonstrate variation ranging from 0.1 percent in the highest performing hospitals/groups to 3.0 percentin lowest performing hospitals/groups for period ending in June 2014.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

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

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

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

Rationale:

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

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

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

Rationale:

- The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure

1501 Risk-Adjusted Operative Mortality for Mitral Valve (MV Repair): Recommended
are generated or collected during the provision of care. • The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications. • The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed. • The committee was satisfied with the measure's feasibility.
4. Usability and Use: H-18; M-4; L-0; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)* Rationale: • The developer reports that the measure is used for quality improvement including with benchmarking and will be publicly reported through the STS public reporting program and through Consumer Reports in 2016. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • The measure is a component of the STS isolated mitral valve surgery composite. Nine related NQF-endorsed STS measures are listed. It is noted that the measures are harmonized.
Standing Committee Recommendation for Endorsement: Y-20; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

1502 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair + CABG Surgery: Recommended
Submission | Specifications
Description: percent of patients aged 18 years and older undergoing combined MV Repair and CABG who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Numerator Statement**: Number of patients aged 18 years and older undergoing combined MV Repair and CABG who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure **Denominator Statement**: All patients undergoing combined MV Repair + CABG **Exclusions**: N/A **Adjustment/Stratification**: No risk adjustment or risk stratification **Level of Analysis**: Facility, Clinician : Group/Practice **Setting of Care**: Hospital/Acute Care Facility **Type of Measure**: Outcome **Data Source**: Electronic Clinical Data : Registry **Measure Steward**: The Society of Thoracic Surgeons
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

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

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

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

1a. Evidence: Y-19; N-0; 1b. Performance Gap: H-9; M-10; L-0; I-0

Rationale:

- The Committee reiterated that a lengthy discussion of evidence related to outcome measures for cardiac surgery had been discussed during the review of measure 0115, which had preceded this one. Accordingly, the Committee moved to immediate vote on this criterion.
- The Committee noted that mortality rates for two time periods, July 2008 – June 2011 and July 2011 – June 2014 demonstrate a performance gap. In the earlier time period, the average rate was 5.24 percent with a range of 3.03 percent to 14.49 percent. In the more recent time period, the average rate was 5.07 percent with a range from 3.12 to 8.01 percent. STS participant-specific mortality rates for the measure demonstrate variation ranging from 1.2 percent in the highest performing hospitals/groups to 10.0 percent in lowest performing hospitals/groups for period ending in June 2014.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

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

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

2a. Reliability: H-15; M-6; L-0; I-0; 2b. Validity: H-11; M-8; L-0; I-0

Rationale:

- The measure is precisely specified.
- To demonstrate reliability of the measure and data element validity, the developers presented information on the STS database audit process, through which participants are randomly selected on an annual basis to undergo an evaluation of the accuracy, consistency, and comprehensiveness of data collection activities.
- Data submitted by the developer show that in the 10 percent of STS Adult Cardiac Surgery Database participants subjected to an audit, there was 95.73 percent agreement between information submitted to the registry by participants and information re-abstracted by independent auditors.
- To demonstrate validity at the measure score level, the developer assessed the predictive validity of the measure by analyzing the stability of measure results over time. Stability of measure scores over time may indicate that the measure is capturing an accurate indication of provider performance.
- Testing results provided by the developer showed that registry participants with the lowest rates (high performers) of post-operative mortality after combined MV repair plus CABG surgery in one time period (July 2012 – June 2013) had correspondingly low rate of mortality in the following period (July 2013 – June 2014) while the mortality rates for those in the middle and low performance groups during the first period were reversed in the later period. Mortality rates in the later period ranged from 1.2 percent in the high performing group to 10.0 percent in the lowest performing group.
- The measure is risk adjusted and both the risk model and risk factors are described in detail.
- There are no exclusions for the measure.
- The Committee determined that the measure has been tested at the data element and performance score levels using appropriate methods and scope with adequate results meeting requirements for data element validity and reliability.

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

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified)

Rationale:

- The data source for this measure is the STS adult cardiac surgery registry. Data elements for the measure are generated or collected during the provision of care.
- The developer notes that not all institutions have full EHR capability; however, all data are submitted to the STS registry in electronic format following standard data specifications.

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

- The developer reports that over 90 percent of programs that provide cardiac surgery in the U.S. participate in the STS database for which annual fees are assessed.
- The committee was satisfied with the measure's feasibility.

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

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

Rationale:

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

5. Related and Competing Measures

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

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

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

-

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

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

9. Appeals

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

Submission | Specifications

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

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

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

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

• Patients undergoing a concurrent obliterative procedure (colpocleisis)

Adjustment/Stratification: No risk adjustment or risk stratification

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

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Process

Data Source: Administrative claims, Electronic Clinical Data : Electronic Health Record

Measure Steward: American Urogynecologic Society

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

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

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

(1a. Evidence, 1b. Performance Gap, 1c. High Impact)

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

Rationale:

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

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

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

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

Rationale:

- The developer reported that to address the concerns regarding testing from the last cycle, they changed their testing approach from reporting based only on billing codes to using electronic and paper chart review. The reliability evaluation or calculations in this submission are based on the identification of a hysterectomy based on ICD-9, ICD-10 or CPT codes for hysterectomy supported by diagnosis of prolapse, and then chart review to confirm the presence or absence of an apical suspension procedure. Data used in testing were derived from information about operations on 3,908 patients by 301 surgeons in 4 hospital systems.
- Some Committee members commented on the small number of cases that are being used to generalize about performance of the measure and its reliability for a relatively high-volume procedure but agreed the chart review answers the question of reliability.
- Developers have presented results of validity testing at the measure score level. Instead of using the apical suspension administrative codes to calculate the numerator (which was done previously), the developers used chart review. The issue of billing codes for apical suspension which were erroneous at one of the four institutions (that codes apical suspension differently) is mitigated by chart review. The denominator is correctly calculated from billing codes.
- The Committee generally found the reliability and validity information submitted by the developers to be sufficient.

3. Feasibility: H-0; M-16; L-8; I-0

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

Rationale:

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

- The Committee had concerns about the burden of chart review and abstraction. The developer shared that data is abstracted from a small number (2-3) of data elements in the op note of the chart.
- The Committee noted that in future years, creation of bundled administrative codes that include hysterectomy with different suspensions and repair codes.
- The Committee generally agreed that data collection is feasible.

4. Usability and Use: H-3; M-17; L-4; I-0

(Meaningful, understandable, and useful to the intended audiences for 3a. Public Reporting/Accountability and 3b. Quality Improvement)

Rationale:

- The measure is not currently in use. The developer notes that the data elements used in this measure will soon be collected in a national Pelvic Floor Disorder Registry (PFDR).
- The Committee was satisfied with the planned use and usability of this measure.

5. Related and Competing Measures

- This measure is related to 2063 Performing cystoscopy at the time of hysterectomy for pelvic organ prolapse to detect lower urinary tract injury, percentage of patients who undergo cystoscopy to evaluate for lower urinary tract injury at the time of hysterectomy for pelvic organ prolapse.
- The Committee questioned whether this measure and the cystoscopy measure (#2063) should be combined. The developers responded that exclusion criteria for the measures are different and that the goals of each measure are different – #2038 is close to an outcome measure and #2063 is primarily a safety procedure and each should have a period of separate implementation and evaluation. The Committee recommended a future evaluation to address whether or not they are connected, and if and how they should be harmonized or combined.

Standing Committee Recommendation for Endorsement: Y-22; N-2

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

-

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

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

9. Appeals

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

Submission | Specifications

Description: percentage of women undergoing hysterectomy for pelvic organ prolapse who have preoperative evaluation for stress urinary incontinence.

Numerator Statement: Number of women undergoing hysterectomy for pelvic organ prolapse who had preoperative evaluation for stress urinary incontinence.

Denominator Statement: All women undergoing hysterectomy (identified by CPT codes) for the indication of pelvic organ prolapse (identified by supporting ICD9 codes).

Exclusions: None.

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Clinician : Group/Practice

Setting of Care: Hospital/Acute Care Facility

Type of Measure: Process

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

Data Source: Electronic Clinical Data : Electronic Health Record

Measure Steward: American Urogynecologic Society

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

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

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

1a. Evidence: H-0; M-14; L-5; I-2; 1b. Performance Gap: H-5; M-15; L-2; I-0

Rationale:

- Evidence presented by the developer included one systematic review of surgical treatment of pelvic organ prolapse (POP) and stress urinary incontinence (SUI) with a flow diagram demonstrating the evidence that evaluation of urinary symptoms preoperatively (cough stress test) can benefit patients. The developer shared that based on the studies, risk of urinary leakage following repair of POP is as high as 63 percent but can be reduced to 11 percent if assessment of bladder function is triaged and incontinence surgery performed with POP repair.
- The Committee discussed if there is sufficient evidence linking the process to an outcome (doing a preoperative cough stress test prior to prolapse surgery provides additional information that, in discussion with patients, can lead to better outcomes) and if a process measure that assesses whether the evaluation is done moves toward impacting outcome. Some Committee members observed that the performing the stress test supports shared decision-making between the patient and the surgeon.
- The developers provide unpublished data (attributed to a study of 4 sites by American Urogynecologic Society) that preoperative evaluation of SUI (type not specified) among low, intermediate and high volume surgeon groups is at 63.1 percent, 73.1 percent and 93.5 percent respectively.
- The Committee agreed that there is opportunity for improvement on this measure.

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

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

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

Rationale:

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

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

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

Rationale:

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

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

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

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

Rationale:

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

5. Related and Competing Measures

- No related or competing measures noted.

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

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

-

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

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

9. Appeals

2681 Perioperative Temperature Management: Recommended

Submission | Specifications

Description: percentage of patients, regardless of age, who undergo surgical or therapeutic procedures under general or neuraxial anesthesia of 60 minutes duration or longer for whom at least one body temperature greater than or equal to 35.5 degrees Celsius (or 95.9 degrees Fahrenheit) was recorded within the 30 minutes immediately before or the 15 minutes immediately after anesthesia end time

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

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

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

Adjustment/Stratification: No risk adjustment or risk stratification

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

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

Type of Measure: Intermediate Clinical Outcome

Data Source: Administrative claims, Electronic Clinical Data

Measure Steward: American Society of Anesthesiologists

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

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

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

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

Rationale:

- This measure was developed as a revision to the previously endorsed measure 0454, with more emphasis being placed on the outcome (temperature of 35.5 degrees) rather than processes of care.
- Evidence presented by the developer included 2010 American Society of PeriAnesthesia Nurses (ASPAN) clinical practice guidelines. The Committee generally concluded that ample evidence showing the linkage

2681 Perioperative Temperature Management: Recommended
between postoperative hypothermia and adverse outcomes was provided. • Some Committee members raised concerns about the subjectivity related to "surgery end time" " but were generally accepting of the information that it is a point in time that is recorded for every case. • The Committee agreed that postoperative hypothermia is a bad outcome with potentially bad sequelae and that there is opportunity for improvement on this measure, particularly among the lowest 3 deciles of practitioner group represented in the 2013 data. • The Committee was generally satisfied with the evidence for this measure, asking only that it be classified as an intermediate outcome measure to which the developer was agreeable.
2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria (2a. Reliability - precise specifications, testing; 2b. Validity - testing, threats to validity) 2a. Reliability: H-4; M-13; L-3; I-0; 2b. Validity: H-3; M-13; L-4; I-0 Rationale: • Data used for testing was obtained from the 2010-2013 public use files of the Anesthesia Quality Institute's National Anesthesia Clinical Outcome Registry (NACOR). These data included 10,590 patients cared for by 232 physicians or nurse anesthetists. • The developer provided the average reliability for each year based on signal to noise analysis (0.523, 0.661, 0.466, and 0.644 for 2010, 2011, 2012, and 2013, respectively). When exclusions are applied per the measure specifications, the reliability is even lower (0.527, 0.611, 0.424, and 0.531 for 2010, 2011, 2012, and 2013, respectively). The developer acknowledges the low reliability of the measure, which was based on small sample size, but suggests that reliability will increase when more data are available in the NACOR and through CPT coding. • The Committee discussed to what extent equipment (temperature probes, forehead stickers, etc.) plays a role in the reliability of the measure. The developer provided that esophageal, pulmonary artery and when placed correctly, nasopharyngeal can well reflect core temperature. • Face validity of the performance measure score was assessed by 23 physician experts. Of these, 16 (70 percent) either agreed or strongly agreed that this measure can accurately distinguish good and poor quality; 4 of these physicians (17 percent) either disagreed or strongly disagreed, and 3 neither agreed nor disagreed. The average rating was 3.78 (from a 5-point scale). • Some Committee members expressed that they would like to have seen data element validity testing as well and questioned whether having multiple temperature measurements versus one would be better.
3. Feasibility: H-11; M-7; L-1; I-0 *(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c.Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)* Rationale: • The developers noted that there may be cases when chart abstraction is necessary but the data should be readily available as a vital sign. • The Committee was generally satisfied with the feasibility of this measure.
4. Usability and Use: H-10; M-8; L-1; I-0 *(Meaningful, understandable, and useful to the intended audiences for 4a. Public Reporting/Accountability and 4b. Quality Improvement)* Rationale: • Committee members discussed a potential unintended consequence being hyperthermia and the developer responded that while it is a concern anytime that patients are actively warmed, the evidence of the benefits in preventing hypothermia are significant. • The developers shared that as a result of this measure, practitioners may move away from forehead skin temperature management. They also reflected that it is still going to be difficult in cases of neuraxial anesthesia to get a valid core temperature because none of the modalities commonly used are very easy to apply in someone who is not intubated. • ASA and AQI/NACOR intend to allow Eligible Professionals to report this measure via the Physician Quality

2681 Perioperative Temperature Management: Recommended
Reporting System, Qualified Clinical Data Registry reporting mechanism beginning in 2015. ASA has submitted this measure to CMS for inclusion in PQRS 2016. • The Committee was generally satisfied with the use and usability of this measure.
5. Related and Competing Measures • No related or competing measures noted.
Standing Committee Recommendation for Endorsement: Y-19; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

2683 Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery: Recommended
Submission | Specifications
Description: percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure Numerator Statement: percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure Denominator Statement: All patients undergoing index pediatric and/or congenital heart surgery Exclusions: - Patients weighing less than or equal to 2,500 grams undergoing isolated patent arterial duct (PDA) ligation as their primary procedure are excluded. We acknowledge that mortality after surgical PDA closure in low-birth weight premature infants can be re Adjustment/Stratification: No risk adjustment or risk stratification Level of Analysis: Facility, Clinician : Group/Practice Setting of Care: Hospital/Acute Care Facility Type of Measure: Outcome Data Source: Electronic Clinical Data : Registry Measure Steward: The Society of Thoracic Surgeons
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015] **1. Importance to Measure and Report: The measure meets the Importance criteria** *(1a. Evidence, 1b. Performance Gap)* 1a. Evidence: Y-21; N-0; 1b. Performance Gap: H-12; M-9; L-0; I-0 Rationale: • The developer reports that this new measure provides risk adjusted mortality based on variables that include operation being performed, STAT category of the operation, a number of preoperative factors that together allow calculation of risk adjusted mortality and observed to expected mortality rates. • The developer reports that the current mortality rate is 3.4 percent. • The Committee noted there is evidence that supports the link between risk-adjusted mortality and the processes and structure of care.

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

- The Committee commented that of the 86 centers in the model's study cohort, 22 percent were outliers – 14 percent had higher than expected mortality, representing significant opportunity for improvement.
- The Committee agreed that the measure meets the criterion of importance to measure and report.

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

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

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

Rationale:

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

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

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

Rationale:

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

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

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

Rationale:

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

2683 Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery: Recommended
5. Related and Competing Measures • Four related measures are identified. Three are STS measures. The fourth measure is 0339, a pediatric heart surgery mortality measure based on administrative data that uses a risk-adjustment classification – RACHS-1. Its companion volume measure, 0340, also uses administrative data. The developer noted that the list of eligible procedures has been mapped to both CPT and ICD-9 codes making it possible to collect the data for the measure outside the registry. The developers will be asked to continue harmonization effort as ICD-10 is implemented.
Standing Committee Recommendation for Endorsement: Y-20; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

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

2687 Hospital Visits after Hospital Outpatient Surgery: Recommended

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

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

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

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

Rationale:

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

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

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

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

Rationale:

- The data used in testing the reliability of the performance measure score were derived from 2009-2011 Medicare fee-for-service (FFS) claims. These data included a 20 percent sample of same-day surgery claims from Part B (physician) claims, which were then matched to the corresponding hospital claims. The developer conducted a "test-retest" approach by randomly selecting half of the patients from each HOPD into two datasets. They then calculated the risk-standardized hospital visit ratios for each HOPD in each of the datasets, then compared the agreement between the scores for the HOPDs using the Intraclass Correlation Coefficient (ICC) The ICC value was 0.50 (95 percent CI: 0.48-0.53), indicating "moderate" agreement according to the categorization by Landis and Koch.
- Face validity of the performance measure score was assessed by a Technical Expert Panel comprised of 15 patient representatives, expert clinicians, methodologist, researchers, and providers. Of the 13 experts who responded, 92.3 percent either strongly or moderately agreed that this measure can accurately distinguish better and worse quality facilities.
- The Committee generally found the reliability and validity information submitted by the developers to be sufficient.

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

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

Rationale:

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

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

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

2687 Hospital Visits after Hospital Outpatient Surgery: Recommended
Rationale: • The Committee was generally satisfied with the use and usability of this measure and would like the comments that have been made to be addressed at the next cycle for the measure.
5. Related and Competing Measures • This measure is related to 2539 Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy, Rate of risk-standardized, all-cause, unplanned hospital visits within 7 days of an outpatient colonoscopy among Medicare fee-for-service (FFS) patients aged 65 years and older. • The Committee recommended that the need for two similar measures, harmonization and unintended consequences should be assessed during the next maintenance cycle once the measures have been in use for some time.
Standing Committee Recommendation for Endorsement: **Y-18**; **N-1**
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

Measures Recommended with Reserve Status

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

that assesses use of evidence-based perioperative medications. As such it is important in providing a picture of overall quality of perioperative care for patients undergoing CABG surgery.

- High performers on this measure achieved 99.9 percent while low performers achieved 95 percent.
- Committee members commented on the 4 percent gap between high and low performers noting that, while statistically meaningful, it may not be clinically meaningful thus as a stand-alone measure, it does not pass the Performance Gap sub-criterion but the Committee agreed that it should be considered for Reserve Status provided all other criteria were met.

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

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

2a. Reliability: **H-15**; **M-6**; **L-0**; **I-0**; 2b. Validity: **H-12**; **M-7**; **L-1**; **I-0**

Rationale:

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

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

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

Rationale:

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

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

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

Rationale:

- The developer reports that the measure is publicly reported through the STS public reporting program

0116 Anti-platelet Medication at Discharge: Recommended with Reserve Status
and through Consumer Reports. It is also used for quality improvement including with benchmarking. • Overall rates of failure to use the medication have been steadily declining with a reported medication usage performance rate in the most recent period reported at 98.9 percent. • The developer reports that it controls for unintended consequences through audit and adjusting expected risk for providers who care for sicker patients. • The Committee was satisfied with the measure's usability.
5. Related and Competing Measures • This measure assesses use of perioperative anti-platelet therapy as does NQF-endorsed 0465, Perioperative Anti-platelet Therapy for Patients Undergoing Carotid Endarterectomy. The developers of both measures were asked to compare "anti-platelet therapy" as defined by their measures to identify any differences as well as opportunity for harmonization. The developer of this measure reports that its updated data collection tool that went live on July 1, 2014 captures aspirin, P2Y12 antagonists, ADP inhibitor, and other anti-platelets thus includes all medications included in 0465.
Standing Committee Recommendation for Endorsement: Y-20; N-0
6. Public and Member Comment: April 17, 2015 – May 18, 2015 (additional 15-day commenting period from May 22, 2015 to June 5, 2015) •
7. Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X; A-X
8. Board of Directors Vote: Y-X; N-X
9. Appeals

Measures Not Recommended

0360 Esophageal Resection Mortality Rate (IQI 8): Not Recommended
Submission | Specifications
Description: Number of inpatient deaths per 100 discharges with a procedure for esophageal resection **Numerator Statement**: Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator. **Denominator Statement**: Discharges, for patients ages 18 years and older, with either • any-listed ICD-9-CM procedure codes for esophageal resection and any-listed ICD-9-CM diagnosis codes for esophageal cancer; or • any-listed ICD-9-CM procedure codes for esophageal resection a **Exclusions**: Exclude cases: • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium) • with missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) **Adjustment/Stratification**: No risk adjustment or risk stratification **Level of Analysis:** Facility **Setting of Care:** Hospital/Acute Care Facility **Type of Measure**: Outcome **Data Source**: Administrative claims **Measure Steward**: Agency for Healthcare Research and Quality
STANDING COMMITTEE MEETING [03/19/2015-03/20/2015]

0360 Esophageal Resection Mortality Rate (IQI 8): Not Recommended

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

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

1a. Evidence: **Y-22**; **N-1**; 1b. Performance Gap: **H-9**; **M-14**; **L-0**; **I-0**

Rationale:

- The developer states that the primary evidence for this indicator arises from the volume-outcome literature, noting that there is a well-established and strong relationship between hospital volume and outcomes from esophageal resection, including in-hospital mortality.
- The developer noted that this measure is intended to be used in combination with measure #0361 (Esophageal resection volume).
- The Committee agreed that there is a rationale to support measuring this volume/outcome.
- Committee members also generally agreed that data provided by the developer show variation in performance and suggest that there is an opportunity for improvement in this area.
- The developer noted that improvements in overall performance have likely been driven in large part by lower-performing hospitals dropping out of the market for esophageal resection and no longer performing these procedures.
- Some Committee members suggested that, in the case of this particular procedure, complication rates may be a better marker of quality than mortality, especially considering that so few esophageal resections are performed each year (roughly 5,000).

2. Scientific Acceptability of Measure Properties: The measure does not meet the Scientific Acceptability criteria

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

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

Rationale:

- The Committee discussed whether this measure should be applied at the clinician or hospital level; it was noted that especially with procedures as complex as esophageal resection, successful surgery is highly dependent on effective team-based care, which suggests that the measure's focus on facilities is appropriate.
- Committee members noted that esophageal resection is a very low-volume procedure in general, making discrimination between providers somewhat difficult.
- Reliability testing of the measure score showed low reliability among low-volume facilities, with reliability increasing as volume increased.
- The developer acknowledged that testing did show low reliability, particularly for low-volume hospitals, which is part of the rationale for pairing this measure with a volume-based measure, since volume is strongly correlated with quality for this procedure.
- The developer suggested that as a pair, the measures provide multiple information points, allowing attention to be focused on the more reliable indicator of quality depending on a hospital's procedural volume, with risk-adjusted mortality being the primary signal of quality among higher-volume facilities and volume itself being the primary signal of quality among lower-volume facilities.
- The measure did not pass a vote on reliability; since reliability is a must-pass criterion, the Committee did not evaluate the measure further.

Standing Committee Recommendation for Endorsement: **Y-X**; **N-X**

Rationale:

- Given the importance of considering mortality and volume together in this instance, the Committee discussed the possibility of a single, combined version of measures 0360 and 0361. The developer noted that there was in fact work being done to support such an approach, and indicated that AHRQ would be open to re-specifying and submitting the measures as a composite.
- The Committee also supported this approach, and agreed to defer a decision on measure 0361 until the Surgery Standing Committee's next cycle of measure review.

Measures Deferred

The following measures submitted for the Standing Committee's review during the project have been deferred for future consideration:

Measure	Reason for deferral
0361: Esophageal Resection Volume (IQI 1)	To allow the developer the opportunity to submit a volume - mortality composite to replace 0360 and 0361.
0736: Survival Predictor for Abdominal Aortic Aneurysm (AAA)	To allow the developer an opportunity to work collaboratively with AHRQ to update and revise the measure.
0737: Survival Predictor for Esophagectomy Surgery©	To allow the developer an opportunity to work collaboratively with AHRQ to update and revise the measure.
0738 : Survival Predictor for Pancreatic Resection Surgery©	To allow the developer an opportunity to work collaboratively with AHRQ to update and revise the measure.

Appendix B: NQF Surgery Portfolio and Related Measures

NQF's full portfolio of measures related to surgery numbers 132 measures. However, the Surgery Standing Committee is responsible for overseeing only 73 of those measures. The remaining 59 measures have been assigned, for various reasons, to other Standing Committees, including Patient Safety (adverse outcomes), EENT (eye surgery measures), Care Coordination (discharge planning measures), and Cardiovascular (pre-operative stress testing measures), among other Committees.

The measures and characteristics listed below represent the portfolio of measures overseen by the Surgery Standing Committee. Only endorsed measures are included.

Four measures in red (and with a † dagger symbol) were newly submitted for consideration and recommended for endorsement by the Surgery Standing Committee in 2015.

Surgery Portfolio Characteristics

By Measure Type
Outcome: **40**
Process: **23**
Structure: **6**
Composite: **3**

By Applicable Care Setting
Ambulatory Care: Clinician Office/Clinic: **4**
Ambulatory Care: Ambulatory Surgery Center: **6**
Hospital/Acute Care Facility: **70**
Long-Term Acute Care Facility: **1**
Home Health: **1**

By Data Source
Administrative claims: **26**
Electronic Clinical Data: **9**
Electronic Clinical Data: EHR: **10**
Electronic Clinical Data: Laboratory: **3**
Electronic Clinical Data: Registry: **32**
Electronic Clinical Data: Pharmacy: **1**
Electronic Clinical Data: Imaging/Diagnostic Study: **2**
Electronic administrative data/claims: **5**
Management Data: **2**
Registry Data: **5**

By Use in Federal Programs
Meaningful Use, Stage 2: Eligible Hospitals or Critical Access Hospitals (CAH): **2**
Physician Quality Reporting System (PQRS): **8**
Physician Feedback/Quality and Resource Use Reports (QRUR): **10**
Home Health Compare: **1**
Core Set of Health Care Quality Measures for Medicaid Eligible Adults: **1**
Hospital Inpatient Quality Reporting: **7**
Hospital Compare: **4**
Prospective Payment System (PPS)-Exempt Cancer Hospital Quality Reporting: **1**
Inpatient Prospective Payment System (IPPS): ***1***
Physician Value-Based Payment Modifier (VBM): **11**
Home Health Quality Reporting: **1**
Hospital Outpatient Quality Reporting: **2**
Hospital Value-Based Purchasing: **1**
Hospital Readmission Reduction Program (HRRP): **1**

By Topic Area
Cross-Cutting (Inpatient): **7**
Cross-Cutting (Outpatient): **3**
Cross-Cutting (Inpatient & Outpatient): **2**
General Surgery: **4**
Anesthesia: **2**
Cardiac Surgery: **26**
Cardiac Surgery (Pediatric & Congenital): **8**
Colorectal Surgery: **1**
Gynecology: ***2***
Orthopedic Surgery: **2**
Otolaryngology: **3**
Urology: **2**
Vascular Surgery: **10**

Cross-Cutting (Inpatient)

- 0218 Surgery Patients Who Received Appropriate Venous Thromboembolism (VTE) Prophylaxis Within 24 Hours Prior to Surgery to 24 Hours After Surgery
- 0284 Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
- 0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
- 0527 Prophylactic Antibiotic Received Within One Hour Prior to Surgical Incision
- 0528 Prophylactic Antibiotic Selection for Surgical Patients
- 0529 Prophylactic Antibiotics Discontinued Within 24 Hours After Surgery End Time
- 0533 Postoperative Respiratory Failure Rate (PSI 11)

Cross-Cutting (Outpatient)

- 0178 Improvement in status of surgical wounds
- 0268 Perioperative Care: Selection of Prophylactic Antibiotic: First OR Second Generation Cephalosporin
- †2687 Hospital Visits after Hospital Outpatient Surgery

Cross-Cutting (Inpatient and Outpatient)

- 0271 Perioperative Care: Discontinuation of Prophylactic Parenteral Antibiotics (Non-Cardiac Procedures)
- 0697 Risk Adjusted Case Mix Adjusted Elderly Surgery Outcomes Measure

General Surgery

- 0273 Perforated Appendix Admission Rate (PQI 2)
- 0365 Pancreatic Resection Mortality Rate (IQI 9)
- 0366 Pancreatic Resection Volume (IQI 2)
- 0738 Survival Predictor for Pancreatic Resection Surgery©

Anesthesia

- 0269 Timing of Prophylactic Antibiotics - Administering Physician
- 2681 Perioperative Temperature Management

Cardiac Surgery

- 0113 Participation in a Systematic Database for Cardiac Surgery
- 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
- 0120 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR)
- 0121 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement

- 0122 Risk-Adjusted Operative Mortality MV Replacement + CABG Surgery
- 0123 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery
- 0126 Selection of Antibiotic Prophylaxis for Cardiac Surgery Patients
- 0127 Preoperative Beta Blockade
- 0128 Duration of Antibiotic Prophylaxis for Cardiac Surgery Patients
- 0129 Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)
- 0130 Risk-Adjusted Deep Sternal Wound Infection Rate
- 0131 Risk-Adjusted Stroke/Cerebrovascular Accident
- 0134 Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)
- 0236 Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery
- 0300 Cardiac Surgery Patients With Controlled Postoperative Blood Glucose
- 0696 The STS CABG Composite Score
- 1501 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair
- 1502 Risk-Adjusted Operative Mortality for MV Repair + CABG Surgery
- 2558 Hospital 30-day All-Cause Risk-Standardized Mortality Rate Following CABG
- 2561 STS Aortic Valve Replacement (AVR) Composite Score
- 2563 STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score

Cardiac Surgery (Pediatric and Congenital)

- 0339 RACHS-1 Pediatric Heart Surgery Mortality
- 0340 Pediatric Heart Surgery Volume (PDI 7)
- 0713 Ventriculoperitoneal (VP) shunt malfunction rate in children
- 0714 Standardized mortality ratio for neonates undergoing non-cardiac surgery
- 0732 Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the Five STS-EACTS Mortality Categories
- 0733 Operative Mortality Stratified by the Five STS-EACTS Mortality Categories
- 0734 Participation in a National Database for Pediatric and Congenital Heart Surgery
- †2683 Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery

Colorectal Surgery

- 0706 Risk Adjusted Colon Surgery Outcome Measure

OB/Gyn - Gynecology

- †2038 Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse
- †2677 Preoperative evaluation for stress urinary incontinence prior to hysterectomy for pelvic organ prolapse.

Orthopedic Surgery

- 0354 Hip Fracture Mortality Rate (IQI 19)

- 1550 Hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)
- 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)

Otolaryngology

- 0360 Esophageal Resection Mortality Rate (IQI 8)
- 0361 Esophageal Resection Volume (IQI 1)
- 0737 Survival Predictor for Esophagectomy Surgery©

Thoracic Surgery (Non-Cardiac)

- 0456 Participation in a Systematic National Database for General Thoracic Surgery

Urology

- 2052 Reduction of Complications through the use of Cystoscopy during Surgery for Stress Urinary Incontinence
- 2063 Performing cystoscopy at the time of hysterectomy for pelvic organ prolapse to detect lower urinary tract injury

Vascular Surgery

- 0357 Abdominal Aortic Aneurysm (AAA) Repair Volume (IQI 4)
- 0359 Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate (IQI 11)
- 0465 Perioperative Anti-platelet Therapy for Patients undergoing Carotid Endarterectomy
- 0534 Hospital specific risk-adjusted measure of mortality or one or more major complications within 30 days of a lower extremity bypass (LEB).
- 0736 Survival Predictor for Abdominal Aortic Aneurysm (AAA)©
- 1519 Statin Therapy at Discharge after Lower Extremity Bypass (LEB)
- 1523 In-hospital mortality following elective open repair of AAAs
- 1534 In-hospital mortality following elective EVAR of AAAs
- 1540 Postoperative Stroke or Death in Asymptomatic Patients undergoing Carotid Endarterectomy
- 1543 Postoperative Stroke or Death in Asymptomatic Patients undergoing Carotid Artery Stenting (CAS)

Appendix C: Surgery Portfolio—Use in Federal Programs

Current as of January 1, 2015

NQF #	Title	Federal Programs: Finalized as of Month XX, XXXX
0114	Risk-Adjusted Postoperative Renal Failure	Physician Quality Reporting System (PQRS), Physician Feedback/Quality and Resource Use Reports (QRUR), Physician Value-Based Payment Modifier (VBM)
0115	Risk-Adjusted Surgical Re-exploration	Physician Quality Reporting System (PQRS), Physician Feedback/Quality and Resource Use Reports (QRUR), Physician Value-Based Payment Modifier (VBM)
0129	Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	Physician Feedback/Quality and Resource Use Reports (QRUR), Physician Value-Based Payment Modifier (VBM)
0130	Risk-Adjusted Deep Sternal Wound Infection Rate	Physician Feedback/Quality and Resource Use Reports (QRUR), Physician Value-Based Payment Modifier (VBM)
0131	Risk-Adjusted Stroke/Cerebrovascular Accident	Physician Feedback/Quality and Resource Use Reports (QRUR), Physician Value-Based Payment Modifier (VBM)
0134	Use of Internal Mammary Artery (IMA) in Coronary Artery Bypass Graft (CABG)	Physician Quality Reporting System (PQRS), Physician Value-Based Payment Modifier (VBM)
0178	Improvement in Status of Surgical Wounds	Home Health Compare, Home Health Quality Reporting
0236	Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery	Physician Quality Reporting System (PQRS), Physician Feedback/Quality and Resource Use Reports (QRUR), Physician Value-Based Payment Modifier (VBM)
0268	Perioperative Care: Selection of Prophylactic Antibiotic – First OR Second Generation Cephalosporin	Physician Quality Reporting System (PQRS), Hospital Outpatient Quality Reporting, Physician Feedback/Quality and Resource Use Reports (QRUR), Physician Value-Based Payment Modifier (VBM)
0271	Perioperative Care: Discontinuation of Prophylactic Parenteral Antibiotics (Non-Cardiac Procedures)	Physician Feedback/Quality and Resource Use Reports (QRUR), Physician Quality Reporting System (PQRS), Physician Value-Based Payment Modifier (VBM),
0272	Diabetes Short-Term Complications	Core Set of Health Care Quality Measures for Medicaid Eligible Adults

NQF #	Title	Federal Programs: Finalized as of Month XX, XXXX
	Admission Rate (PQI 01)	
0300	Cardiac Surgery Patients With Controlled Postoperative Blood Glucose	Hospital Inpatient Quality Reporting
0351	Death among surgical inpatients with serious, treatable complications (PSI 4)	Hospital Compare, Hospital Inpatient Quality Reporting
0359	Abdominal aortic aneurysm (AAA) repair mortality rate (with or without volume) (IQI 11)	Hospital Compare, Hospital Inpatient Quality Reporting
0527	Prophylactic antibiotic received within 1 hour prior to surgical incision	Meaningful Use, Stage 2: Eligible Hospitals or Critical Access Hospitals (CAH), Hospital Inpatient Quality Reporting
0528	Prophylactic Antibiotic Selection for Surgical Patients	Meaningful Use, Stage 2: Eligible Hospitals or Critical Access Hospitals (CAH), Prospective Payment System (PPS)-Exempt Cancer Hospital Quality Reporting, Hospital Inpatient Quality Reporting, Hospital Compare, Hospital Outpatient Quality Reporting
0533	Post Operative Respiratory Failure (PSI 11)	Hospital Compare, Hospital Inpatient Quality Reporting
1540	Postoperative Stroke or Death in Asymptomatic Patients undergoing Carotid Endarterectomy	Physician Quality Reporting System (PQRS), Physician Feedback/Quality and Resource Use Reports (QRUR), Physician Value-Based Payment Modifier (VBM)
1543	Postoperative Stroke or Death in Asymptomatic Patients undergoing Carotid Artery Stenting (CAS)	Physician Quality Reporting System (PQRS), Physician Feedback/Quality and Resource Use Reports (QRUR), Physician Value-Based Payment Modifier (VBM)
1550	Hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and total knee	Hospital Inpatient Quality Reporting, Hospital Value-Based Purchasing

NQF #	Title	Federal Programs: Finalized as of Month XX, XXXX
	arthroplasty (TKA)	
1551	Hospital-level 30 day, all-cause, risk-standardized readmission rate (RSSR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)	Inpatient Prospective Payment System (IPPS), Hospital Readmission Reduction Program (HRRP)

Appendix D: Project Standing Committee and NQF Staff

STANDING COMMITTEE

Anthony Asher, MD, FAANS, FACS
Neurosurgeon, Carolina Neurosurgery & Spine Associates
Charlotte, North Carolina

Robert Cima, MD, MA
Professor of Surgery, Mayo Clinic
Rochester, Minnesota

Richard Dutton, MD, MBA
Executive Director, Anesthesia Quality Institute
Park Ridge, Illinois

Elisabeth Erekson, MD, MPH
Assistant Professor, Dartmouth Hitchcock Medical Center
Manchester, New Hampshire

Lee Fleisher, MD *(Co-Chair)*
Professor and Chair of Anesthesiology, University of Pennsylvania/American Society of Anesthesiologists
Philadelphia, Pennsylvania

Frederick Grover, MD
Professor of Cardiothoracic Surgery, University of Colorado School of Medicine
Aurora, Colorado

William Gunnar, MD, JD *(Co-Chair)*
Director, National Surgery Program Office, Veterans Health Administration
Washington, DC

John Handy, MD
Thoracic Surgeon, American College of Chest Physicians
Portland, Oregon

Mark Jarrett, MD, MBA
Chief Quality Officer, Associate Chief Medical Officer, North Shore-LIJ Health System
Great Neck, New York

Clifford Ko, MD, MS, MSHS, FACS
Director, Division of Research and Optimal Patient Care, American College of Surgeons/Professor of Surgery, Department of Surgery, UCLA School of Medicine, American College of Surgeons/UCLA School of Medicine
Chicago, Illinois

Barbara Levy, MD, FACOG, FACS
Vice President, Health Policy, American College of Obstetricians and Gynecologists
Washington, DC

Barry Markman, MD
Medical Director – Medicaid, Aetna
Las Vegas, Nevada

Kelsey McCarty, MS, MBA
Senior Manager, Quality and Safety Program, Department of Anesthesia, Massachusetts General Hospital
Boston, Massachusetts

Lawrence Moss, MD
Surgeon-in-Chief, Nationwide Children's Hospital
Columbus, Ohio

Amy Moyer, MS, PMP
Manager of Value Measurement, The Alliance
Fitchburg, Wisconsin

Keith Olsen, PharmD, FCCP, FCCM
Professor and Chair, Department of Pharmacy Practice, University of Nebraska Medical Center, American Society of Health-System Pharmacists
Omaha, Nebraska

Collette Pitzen, RN, BSN, CPHQ
Clinical Measure Developer, MN Community Measurement
Minneapolis, Minnesota

Lynn Reede, DNP, MBA, CRNA
Senior Director, Professional Practice, American Association of Nurse Anesthetists
Park Ridge, Illinois

Gary Roth, DO, FACOS, FCCM, FACS
Medical Director, MHA Keystone Center
Okemos, Michigan

Christopher Saigal, MD, MPH
Professor, UCLA
Los Angeles, California

Robert Sawin, MD, MS
Surgeon-in-Chief, Seattle Children's Hospital and the Organization of Children's Hospital Surgeons-in-Chief
Seattle, Washington

Allan Siperstein, MD
Chairman Endocrine Surgery, Cleveland Clinic
Cleveland, Ohio

Larissa Temple, MD
Colorectal Service, Department of Surgery, Memorial Sloan-Kettering Cancer Center
New York, New York

Melissa Thomason
Patient/Family Advisor, Vidant Health
Pinetops, North Carolina

A.J. Yates, MD
Associate Professor, University of Pittsburgh Medical Center
Pittsburgh, Pennsylvania

NQF STAFF

Marcia Wilson, PhD, MBA
Senior Vice President
Quality Measurement

Melinda Murphy, RN, MS
Senior Director
Quality Measurement

Andrew Lyzenga, MPP
Senior Project Manager
Quality Measurement

Juliet Feldman
Project Manager
Quality Measurement

Yetunde Alexandra Ogungbemi
Project Analyst
Quality Measurement

Appendix E: Implementation Comments

Comments received as of February 10, 2015.

Topic	Commenter	Comment
General Comment	Submitted by Ms. Carmella Bocchino, MBA, RN	We are supportive of the measures that are undergoing maintenance review.
General Comment	Submitted by David S.P. Hopkins, MS, PhD	The Pacific Business Group on Health commends the Surgery Standing Committee for recommending a very strong set of measures, nearly all of which represent important (to purchasers and consumers) outcomes of care. We strongly support all those measures that are on the recommended list and would like to commend the developers -- AHRQ, STS, and Yale CORE -- as well for their good work.
0236 – Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery	Submitted by Ms. Carmella Bocchino, MBA, RN	Adequate testing is needed prior to implementation of this measure for levels of analysis other than provider.
0354 – Hip Fracture Mortality Rate (IQI 19)	Submitted by Ms. Carmella Bocchino, MBA, RN	Adequate testing is needed prior to implementation of this measure for levels of analysis other than provider.
0360 – Esophageal Resection Mortality Rate (IQI 8)	Submitted by Ms. Carmella Bocchino, MBA, RN	This measure is reported per 100 patients, while all other mortality measures are reported per 1000 patients. While the rate for certain cardiac surgery measures is probably higher when reported on a per 100 patient basis, we believe that in the interest of consistency this measure should also be reported on a per 1000 patients. Additionally, Adequate testing is needed prior to implementation of this measure for levels of analysis other than provider.
0361 – Esophageal Resection Volume (IQI 1)	Submitted by Ms. Carmella Bocchino, MBA, RN	Adequate testing is needed prior to implementation of this measure for levels of analysis other than provider.
0533 –Postoperative Respiratory Failure Rate (PSI 11)	Submitted by Ms. Carmella Bocchino, MBA, RN	Adequate testing is needed prior to implementation of this measure for levels of analysis other than provider.

Topic	Commenter	Comment
2038 – Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse	Submitted by Ms. Carmella Bocchino, MBA, RN	We believe that this measure is being recommended more on the basis of consensus as there is insufficient scientific evidence to support its endorsement.
2038 – Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse	Submitted by Ms. Carmella Bocchino, MBA, RN	Would like to see stronger evidence that use of this measure will produce lower outcomes in regards to additional surgeries
2038 – Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse	Submitted by Ms. Suzanne Pope	The American Urological Association supports the measure on performing vaginal apical suspension at the time of hysterectomy. This measure addresses a gap and allows for a relevant measure on which urogynecologists and other providers can report.
2677 – Preoperative evaluation for stress urinary incontinence prior to hysterectomy for pelvic organ prolapse.	Submitted by Ms. Carmella Bocchino, MBA, RN	There is insufficient scientific evidence to support endorsement of this measure. We are concerned that this measure is being recommended more on the basis of consensus-based guidelines
2677 – Preoperative evaluation for stress urinary incontinence prior to hysterectomy for pelvic organ prolapse.	Submitted by Ms. Christine Pozar	Would like to see stronger evidence that use of this measure will produce lower outcomes in regards to additional surgeries.
2677 – Preoperative evaluation for stress urinary incontinence prior to hysterectomy for pelvic organ prolapse.	Submitted by Ms. Suzanne Pope	The American Urological Association supports the measure on preop evaluation for SUI prior to hysterectomy for pelvic organ prolapse.
2681 – Perioperative Temperature Management	Submitted by Ms. Carmella Bocchino, MBA, RN	We do not believe this measure to be an improvement over the previous measure - #0454. Evidence showed that the previous measure (#0454) did not result in improved quality, yet the new measure reduces the allowable temperature reading, making it difficult to see how a better outcome will be achieved with this new measure.

Topic	Commenter	Comment
2681 – Perioperative Temperature Management	Submitted by Ms. Christine Pozar	Do not believe that this measure improves on NQF#0454, and do not support use. Evidence provided from the Journal for Healthcare Quality 2014 stated that 5.8% of patients who "passed" the measure were still hypothermic in the Post-Anesthesia Care Unit showed the deficiencies in NQF#0454. While #2681 removes the active warming, lowering the pre and post op reading to 95.9 degrees F, does not imply a stronger outcome than viewed with NQF#0454; therefore do not see the value of this measure. Would like to see stronger evidence that use of this measure will produce lower outcomes in regards to additional surgeries.
2683 – Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery	Submitted by Ms. Carmella Bocchino, MBA, RN	We support this measure.
2683 – Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery	Submitted by Ms. Christine Pozar	See this as a strong measure from the Society of Thoracic Surgeons to help support improved outcomes for pediatric heart patients
2687 – Hospital Visits after Hospital Outpatient Surgery	Submitted by Ms. Carmella Bocchino, MBA, RN	Outpatient surgery with subsequent hospitalization is a measure of quality, and we agree that hospitalizations after outpatient surgery should be avoided and patients should receive appropriate outpatient care. However, some unplanned visits will occur at other than hospital outpatient department sites, e.g., urgent care centers. Some surgeons also use the ER to see these patients in the event that hospital care or equipment or radiology or laboratory services are necessary. It would be important to avoid unintended consequences of this measure as in some cases hospitalizations or ER visits may be necessary and implementation of this measure may cause some beneficiaries to first see the doctor in the office, and then if needed to be ambulanced to the hospital. This might cause an unnecessary delay in care.

Appendix F: Measure Specifications

	0115 Risk-Adjusted Surgical Re-exploration
Status	Public and Member Commenting
Steward	The Society of Thoracic Surgeons
Description	percent of patients aged 18 years and older undergoing isolated CABG who require a re-intervention during the current hospitalization for mediastinal bleeding with or without tamponade, graft occlusion, valve dysfunction, or other cardiac reason
Type	Outcome
Data Source	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014. Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Specifications.docx
Level	Facility, Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Numerator – During the hospitalization for surgery, which includes the entire postoperative period up to discharge, even if over 30 days Denominator – 12 months
Numerator Statement	Number of patients undergoing isolated CABG who require a re-intervention during the current hospitalization for mediastinal bleeding with or without tamponade, graft occlusion, valve dysfunction, or other cardiac reason
Numerator Details	Number of isolated CABG procedures in which any of the following are marked "yes" – 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)
Denominator Statement	All patients undergoing isolated CABG
Denominator Details	Number of isolated CABG procedures. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.
Exclusions	N/A
Exclusion details	N/A
Risk Adjustment	Statistical risk model The details of risk adjustment model development were published in 2009. The list of candidate risk predictors were selected by a surgeon panel based on prior research and clinical expertise. Initial models were selected using a backwards approach with a significance criterion of 0.001 for removal. Several variables were preselected and forced into the models. These included all of the continuous variables (age, BSA, date of surgery [in 6-month intervals], creatinine, ejection fraction), plus sex and dialysis. Shahian DM, O'Brien SM, Filardo G, Ferraris VA, et al. The Society of Thoracic Surgeons 2008 cardiac surgery risk models: part 1--coronary artery bypass grafting surgery. Ann Thorac Surg. 2009 Jul;88(1 Suppl):S2-22. The definitions of all the variables in the final 2008 CABG model are provided below. (Note: not all were included in the final model for this measure.) Variable Definition _____ Intercept = 1 for all patients

	0115 Risk-Adjusted Surgical Re-exploration
	Atrial fibrillation = 1 if patient has history of preoperative atrial fibrillation, = 0 otherwise Age = Patient age in years Age function 1 = max (age–50, 0) Age function 2 = max (age–60, 0) Age by reop function = Age function 1 if surgery is a reoperation, = 0 otherwise Age by status function = Age function 1 if status is emergent or salvage, = 0 otherwise BSA function 1 = max (1.4, min [2.6, BSA]) – 1.8 BSA function 2 = (BSA function 1)2 CHF but not NYHA IV = 1 if patient has CHF and is not NYHA class IV, = 0 otherwise CHF and NYHA IV = 1 if patient has CHF and is NYHA class IV, = 0 otherwise CLD mild= 1 if patient has mild chronic lung disease, = 0 otherwise CLD moderate = 1 if patient has moderate chronic lung disease, = 0 otherwise CLD severe = 1 if patient has severe chronic lung disease, = 0 otherwise Creatinine function 1 = max (0.5, min [creatinine, 5.0]) if patient is not on dialysis, = 0 otherwise Creatinine function 2 = max ([creatinine function 1] – 1.0, 0) Creatinine function 3 = max ([creatinine function 1] – 1.5, 0) CVD without prior CVA = 1 if patient has history of CVD and no prior CVA, = 0 otherwise CVD and prior CVA = 1 if patient has history of CVD and a prior CVA, = 0 otherwise Diabetes, noninsulin = 1 if patient has diabetes not treated with insulin, = 0 otherwise Diabetes, insulin = 1 if patient has diabetes treated with insulin, = 0 otherwise Ejection fraction function = max (50 – ejection fraction, 0) Female = 1 if patient is female, = 0 otherwise Female by BSA function 1 = BSA function 1 if female, = 0 otherwise Female by BSA function 2 = BSA function 2 if female, = 0 otherwise Hypertension = 1 if patient has hypertension, = 0 otherwise IABP or inotropes= 1 if patient requires IABP or inotropes preoperatively, = 0 otherwise Immunosuppressive treatment = 1 if patient given immunosuppressive therapy within 30 days, = 0 otherwise Insufficiency, aortic = 1 if patient has at least moderate aortic insufficiency, = 0 otherwise Insufficiency, mitral = 1 if patient has at least moderate mitral insufficiency, = 0 otherwise Insufficiency, tricuspid = 1 if patient has at least moderate tricuspid insufficiency, = 0 otherwise Left main disease = 1 if patient has left main disease, = 0 otherwise MI 1 to 21 days = 1 if history of MI 1 to 21 days prior to surgery, = 0 otherwise MI > 6 and < 24 hours = 1 if history of MI >6 and <24 hours prior to surgery, = 0 otherwise MI 6 hours = 1 if history of MI 6 hours prior to surgery, = 0 otherwise No. diseased vessel function = 2 if triple-vessel disease, = 1 if double-vessel disease, = 0 otherwise PCI 6 hours = 1 if patient had PCI 6 hours prior to surgery, = 0 otherwise Peripheral vascular disease = 1 if patient has peripheral vascular disease, = 0 otherwise

	0115 Risk-Adjusted Surgical Re-exploration
	Race black = 1 if patient is black, = 0 otherwise Race Hispanic = 1 if patient is nonblack Hispanic, = 0 otherwise Race Asian = 1 if patient is nonblack, non-Hispanic, and is Asian, = 0 otherwise Reop, 1 previous operation = 1 if patient has had exactly 1 previous CV surgery, = 0 otherwise Reop, 2 previous operations = 1 if patient has had 2 or more previous CV surgeries, = 0 otherwise Shock = 1 if patient was in shock at time of procedure, = 0 otherwise Status urgent = 1 if status is urgent, = 0 otherwise Status emergent = 1 if status is emergent (but not resuscitation), = 0 otherwise Status salvage = 1 if status is salvage (or emergent plus resuscitation), = 0 otherwise Stenosis aortic = 1 if patient has aortic stenosis, = 0 otherwise Unstable angina = 1 if patient has unstable angina, no MI within 7 days of surgery, = 0 otherwise Available in attached Excel or csv file at S.2b
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: N/A 5b.1 If competing, why superior or rationale for additive value: N/A

	0116 Anti-Platelet Medication at Discharge
Status	Submitted
Steward	The Society of Thoracic Surgeons
Description	percent of patients aged 18 years and older undergoing isolated CABG who were discharged on anti-platelet medication
Type	Process
Data Source	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014. Available at measure-specific web page URL identified in S.1 No data dictionary
Level	Facility, Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Denominator – 12 months
Numerator Statement	Number of patients undergoing isolated CABG who were discharged on anti-platelet medication
Numerator Details	Number of isolated CABG procedures in which discharge aspirin [DCASA (STS Adult Cardiac Surgery Database Version 2.73)] or discharge ADP inhibitors (DCADP) is marked “yes” If a patient is on Plavix due to an aspirin contraindication, s/he is counted in the numerator because STS accepts either ASA or ADP inhibitors for the numerator
Denominator Statement	All patients undergoing isolated CABG
Denominator Details	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.
Exclusions	Cases are removed from the denominator if there was an in-hospital mortality or if discharge aspirin was contraindicated.
Exclusion details	Mortality Discharge Status (MtDCStat), Mortality Date (MtDate), and Discharge Date (DischDt) indicate an in-hospital mortality; discharge aspirin (DCASA) is marked as “Contraindicated”
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: N/A 5b.1 If competing, why superior or rationale for additive value: N/A

	0118 Anti-Lipid Treatment Discharge
Status	Submitted
Steward	The Society of Thoracic Surgeons
Description	percent of patients aged 18 years and older undergoing isolated CABG who were discharged on a lipid lowering statin
Type	Process
Data Source	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014. Available at measure-specific web page URL identified in S.1 No data dictionary
Level	Facility, Clinician: Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Denominator – 12 months
Numerator Statement	Number of patients undergoing isolated CABG who were discharged on a lipid lowering statin
Numerator Details	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 Statement	All patients undergoing isolated CABG
Denominator Details	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.
Exclusions	Cases are removed from the denominator if there was an in-hospital mortality or if discharge anti-lipid treatment was contraindicated.
Exclusion details	Mortality Discharge Status (MtDCStat), Mortality Date (MtDate), and Discharge Date (DischDt) indicate an in-hospital mortality; DCLipid is marked as "Contraindicated"
Risk Adjustment	No risk adjustment or risk stratification N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: N/A 5b.1 If competing, why superior or rationale for additive value: N/A

	0120 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR)
Status	Submitted
Steward	The Society of Thoracic Surgeons
Description	percent of patients aged 18 years and older undergoing Aortic Valve Replacement (AVR) who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Type	Outcome
Data Source	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014. Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_Valve_Surgery_Risk_Model_Specifications.docx
Level	Facility, Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Numerator – During the hospitalization regardless of length of stay or within 30 days of surgery if discharged Denominator – 36 months
Numerator Statement	Number of patients aged 18 years and older undergoing AVR 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
Numerator Details	Number of isolated AVR procedures with an operative mortality; Number of isolated AVR procedures in which Mortality [Mortalty (STS Adult Cardiac Surgery Database Version 2.73)] 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)
Denominator Statement	All patients undergoing isolated AVR surgery
Denominator Details	Number of isolated AVR procedures. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.
Exclusions	N/A
Exclusion details	N/A
Risk Adjustment	Statistical risk model The details of risk adjustment model development were published in 2009. The list of candidate risk predictors were selected by a surgeon panel based on prior research and clinical expertise. Age, sex, body surface area, and month of surgery were forced into each model. Other variables were selected in a stepwise fashion using a significance criterion of 0.05 for entry and removal. This criterion was less stringent than that employed in development of the CABG models, because the sample size in the former was so much larger than that which was used for the valve models. O'Brien SM, Shahian DM, Filardo G, Ferraris VA, Haan CK, Rich JB, Normand SL, DeLong ER, Shewan CM, Dokholyan RS, Peterson ED, Edwards FH, Anderson RP. The Society of Thoracic Surgeons 2008 cardiac surgery risk models: part 2--isolated valve surgery. Ann Thorac Surg 2009 Jul;88(1 Suppl):S23-42. The definitions of all the variables in the final 2008 isolated valve surgery models are provided below. (Note not all were included in the final model for this measure.) Candidate Variables Coding

	0120 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR)
	Continuous variables Age Linear spline truncated from below at 50 and with knot at 75 Ejection fraction Linear, values > 50 mapped to 50 Body surface area Quadratic polynomial modeled separately for males and females. Note: body surface area < 1.4 and > 2.6 mapped to those values, respectively. Creatinine Linear (only for patients not on dialysis). Note: creatinine < 0.5 and > 5.0 mapped to those values, respectively. Time trend Ordinal categorical variable with separate category for each 6-month harvest interval. Modeled as linear across categories. Binary variables Active infectious endocarditis Yes/no Dialysis Yes/no Preoperative atrial fibrillation Yes/no Shock Yes/no Female Yes/no Hypertension Yes/no Immunosuppressive treatment Yes/no Preoperative IABP or inotropes Yes/no Peripheral vascular disease Yes/no Unstable angina (no MI < 7 days) Yes/no Left main disease Yes/no Aortic stenosis Yes/no Mitral stenosis Yes/no Aortic insufficiency Defined as at least moderate (yes/no) Mitral insufficiency Defined as at least moderate (yes/no) Tricuspid insufficiency Defined as at least moderate (yes/no) Categorical variables Chronic lung disease Modeled as linear across categories (none, mild, moderate, severe) CVD/CVA 3 groups: no CVD, CVD no CVA, CVD + CVA Diabetes mellitus 3 groups: insulin diabetes, noninsulin diabetes, other or no diabetes Number diseased coronary vessels 3 groups: < 2, 2, 3. Modeled as linear across the categories MI 3 groups: < 24 hr, 1–21 days, > 21 days or no MI (groups 1 and 2 were subsequently collapsed) Race 3 groups: Black; Hispanic; Other including Caucasian Status 4 groups: elective, urgent, emergent—no resuscitation, salvage or emergent with resuscitation Previous cardiovascular operations 3 groups: 0 previous, 1 previous, =2 previous CHF and NYHA class 3 groups: no CHF, CHF not NYHA IV, CHF+NYHA IV Interaction terms Age by reoperation Age by emergent status Available in attached Excel or csv file at S.2b
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram

	0120 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR)
	provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: N/A 5b.1 If competing, why superior or rationale for additive value: N/A

	0121 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement
Status	Submitted
Steward	The Society of Thoracic Surgeons
Description	percent of patients aged 18 years and older undergoing MV Replacement who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Type	Outcome
Data Source	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014. Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_Valve_Surgery_Risk_Model_Specifications-635570209817898453.docx
Level	Facility, Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Numerator – During the hospitalization regardless of length of stay or within 30 days of surgery if discharged Denominator – 36 months
Numerator Statement	Number of patients aged 18 years and older undergoing MV Replacement who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Numerator Details	Number of isolated MV Replacement procedures with an operative mortality; Number of isolated MV Replacement procedures in which Mortality [Mortalty (STS Adult Cardiac Surgery Database Version 2.73)] 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)
Denominator Statement	All patients undergoing isolated MV replacement surgery
Denominator Details	Number of isolated mitral valve replacement procedures. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.
Exclusions	N/A
Exclusion details	N/A
Risk Adjustment	Statistical risk model The details of risk adjustment model development were published in 2009. The list of candidate risk predictors were selected by a surgeon panel based on prior research and clinical expertise. Age, sex, body surface area, and month of surgery were forced into each model. Other variables were selected in a stepwise fashion using a significance criterion of 0.05 for entry and removal. This criterion was less stringent than that employed in development of the CABG models, because the sample size in the former was so much larger than that which was used for the valve models. O'Brien SM, Shahian DM, Filardo G, Ferraris VA, Haan CK, Rich JB, Normand SL, DeLong ER, Shewan CM, Dokholyan RS, Peterson ED, Edwards FH, Anderson RP. The Society of Thoracic Surgeons 2008 cardiac surgery risk models: part 2--isolated valve surgery. Ann Thorac Surg 2009 Jul;88(1 Suppl):S23-42. The definitions of all the variables in the final 2008 isolated valve surgery models are provided below. (Note not all were included in the final model for this measure.) Candidate Variables Coding

	0121 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement
	Continuous variables Age Linear spline truncated from below at 50 and with knot at 75 Ejection fraction Linear, values > 50 mapped to 50 Body surface area Quadratic polynomial modeled separately for males and females. Note: body surface area < 1.4 and > 2.6 mapped to those values, respectively. Creatinine Linear (only for patients not on dialysis). Note: creatinine < 0.5 and > 5.0 mapped to those values, respectively. Time trend Ordinal categorical variable with separate category for each 6-month harvest interval. Modeled as linear across categories. Binary variables Active infectious endocarditis Yes/no Dialysis Yes/no Preoperative atrial fibrillation Yes/no Shock Yes/no Female Yes/no Hypertension Yes/no Immunosuppressive treatment Yes/no Preoperative IABP or inotropes Yes/no Peripheral vascular disease Yes/no Unstable angina (no MI < 7 days) Yes/no Left main disease Yes/no Aortic stenosis Yes/no Mitral stenosis Yes/no Aortic insufficiency Defined as at least moderate (yes/no) Mitral insufficiency Defined as at least moderate (yes/no) Tricuspid insufficiency Defined as at least moderate (yes/no) Categorical variables Chronic lung disease Modeled as linear across categories (none, mild, moderate, severe) CVD/CVA 3 groups: no CVD, CVD no CVA, CVD + CVA Diabetes mellitus 3 groups: insulin diabetes, noninsulin diabetes, other or no diabetes Number diseased coronary vessels 3 groups: < 2, 2, 3. Modeled as linear across the categories MI 3 groups: < 24 hr, 1–21 days, > 21 days or no MI (groups 1 and 2 were subsequently collapsed) Race 3 groups: Black; Hispanic; Other including Caucasian Status 4 groups: elective, urgent, emergent—no resuscitation, salvage or emergent with resuscitation Previous cardiovascular operations 3 groups: 0 previous, 1 previous, =2 previous CHF and NYHA class 3 groups: no CHF, CHF not NYHA IV, CHF+NYHA IV Interaction terms Age by reoperation Age by emergent status Available in attached Excel or csv file at S.2b
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram

	0121 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement
	provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: N/A 5b.1 If competing, why superior or rationale for additive value: N/A

	0122 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement + CABG Surgery
Status	Submitted
Steward	The Society of Thoracic Surgeons
Description	percent of patients aged 18 years and older undergoing combined MV Replacement and CABG who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Type	Outcome
Data Source	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014. Available at measure-specific web page URL identified in S.1 Attachment S.15._Valve-CABG_Surgery_Detailed_Risk_Model_Specifications.docx
Level	Facility, Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Numerator – During the hospitalization regardless of length of stay or within 30 days of surgery if discharged Denominator – 36 months
Numerator Statement	Number of patients aged 18 years and older undergoing combined MV Replacement and CABG who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Numerator Details	Number of MV Replacement + CABG procedures with an operative mortality; Number of MV Replacement + CABG procedures in which Mortality [Mortalty (STS Adult Cardiac Surgery Database Version 2.73)] 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)
Denominator Statement	All patients undergoing combined MV Replacement + CABG
Denominator Details	Number of MV Replacement + CABG procedures. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.
Exclusions	N/A
Exclusion details	N/A
Risk Adjustment	Statistical risk model The details of risk adjustment model development were published in 2009. The list of candidate risk predictors were selected by a surgeon panel based on prior research and clinical expertise. Age, body surface area, and month of surgery were forced into each model. Other variables were selected in a stepwise fashion using a significance criterion of 0.05 for entry and removal. This criterion was less stringent than that employed in development of the CABG models, because the sample size in the former was so much larger than that which was used for the valve + CABG models. Shahian DM, O'Brien SM, Filardo G, Ferraris VA, Haan CK, Rich JB, Normand SL, DeLong ER, Shewan CM, Dokholyan RS, Peterson ED, Edwards FH, Anderson RP. The Society of Thoracic Surgeons 2008 cardiac surgery risk models: part 3--valve plus coronary artery bypass grafting surgery. Ann Thorac Surg 2009 Jul;88(1 Suppl):S43-62. The definitions of all the variables in the final 2008 valve surgery + CABG models are provided below. (Note not all were included in the final model for this measure.) Candidate Variables Coding

	0122 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement + CABG Surgery
	Continuous variables Agea Linear spline truncated from below at 50 with knot at 75. Ejection fraction Linear; values > 50 mapped to 50 Body surface areaa Quadratic polynomial modeled separately for males and females. Note: BSA < 1.4 and > 2.6 were mapped to those values, respectively. Creatinine Linear (only for patients not on dialysis). Note: Creatinine < 0.5 and > 5.0 mapped to those values, respectively. Time trenda Ordinal categorical variable with separate category for each 6-month harvest interval. Modeled as linear across the categories. Binary variables Active infectious endocarditis Yes/no Dialysis Yes/no Preoperative atrial fibrillation Yes/no Shock Yes/no Femalea Yes/no Hypertension Yes/no Immunosuppressive treatment Yes/no Preop IABP or inotropes Yes/no Peripheral vascular disease Yes/no Unstable angina (no MI < 7 days) Yes/no Left main disease Yes/no Aortic stenosis Yes/no Mitral stenosis Yes/no Aortic insufficiency Defined as at least moderate (yes/no) Mitral insufficiency Defined as at least moderate (yes/no) Tricuspid insufficiency Defined as at least moderate (yes/no) Categorical variables Chronic lung disease Modeled as linear across categories (none, mild, moderate, severe) CVD/CVA 3 groups: no CVD, CVD no CVA, CVD + CVA Diabetes mellitus 3 groups: insulin diabetes, noninsulin diabetes, other or no diabetes No. diseased coronary vessels 3 groups: < 2-vessel disease; 2-vessel disease; 3-vessel disease. Modeled as linear across the categories MI 3 groups: < 24 hours, 1–21 days, > 21 days or no MI. Note: groups 1 and 2 were subsequently collapsed for some models. Race 3 groups: black, Hispanic, other including Caucasian Status 4 groups: elective, urgent, emergent no resuscitation, salvage or emergent with resuscitation Previous cardiovascular operations 3 groups: 0 previous, 1 previous, = 2 previous CHF and NYHA class 3 groups: no CHF, CHF not NYHA IV, CHF and NYHA IV Interaction terms Age by reoperationa Age by emergent statusa CHF = congestive heart failure; CLD = chronic lung disease; CVA = cerebrovascular accident (stroke); CVD = cardiovascular disease; EF = ejection fraction; IABP = intra-aortic balloon pump; MI = myocardial infarction; NYHA = New York Heart Association. a These variables were forced into each model.

	0122 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Replacement + CABG Surgery
	Available in attached Excel or csv file at S.2b
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: N/A 5b.1 If competing, why superior or rationale for additive value: N/A

	0123 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery
Status	Submitted
Steward	The Society of Thoracic Surgeons
Description	percent of patients aged 18 years and older undergoing combined AVR and CABG who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Type	Outcome
Data Source	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014. Available at measure-specific web page URL identified in S.1 Attachment S.15._Valve-CABG_Surgery_Detailed_Risk_Model_Specifications-635570230457281519.docx
Level	Facility, Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Numerator – During the hospitalization regardless of length of stay or within 30 days of surgery if discharged Denominator – 36 months
Numerator Statement	Number of patients aged 18 years and older undergoing combined AVR and CABG who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.
Numerator Details	Number of AVR + CABG procedures with an operative mortality; Number of AVR + CABG procedures in which Mortality [Mortalty (STS Adult Cardiac Surgery Database Version 2.73)] 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)
Denominator Statement	All patients undergoing combined AVR + CABG
Denominator Details	Number of AVR + CABG procedures. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.
Exclusions	N/A
Exclusion details	N/A
Risk Adjustment	Statistical risk model The details of risk adjustment model development were published in 2009. The list of candidate risk predictors were selected by a surgeon panel based on prior research and clinical expertise. Age, body surface area, and month of surgery were forced into each model. Other variables were selected in a stepwise fashion using a significance criterion of 0.05 for entry and removal. This criterion was less stringent than that employed in development of the CABG models, because the sample size in the former was so much larger than that which was used for the valve + CABG models. Shahian DM, O'Brien SM, Filardo G, Ferraris VA, Haan CK, Rich JB, Normand SL, DeLong ER, Shewan CM, Dokholyan RS, Peterson ED, Edwards FH, Anderson RP. The Society of Thoracic Surgeons 2008 cardiac surgery risk models: part 3--valve plus coronary artery bypass grafting surgery. Ann Thorac Surg 2009 Jul;88(1 Suppl):S43-62. The definitions of all the variables in the final 2008 valve surgery + CABG models are provided below. (Note not all were included in the final model for this measure.) Candidate Variables Coding

	0123 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery
	Continuous variables Agea Linear spline truncated from below at 50 with knot at 75. Ejection fraction Linear; values > 50 mapped to 50 Body surface areaa Quadratic polynomial modeled separately for males and females. Note: BSA < 1.4 and > 2.6 were mapped to those values, respectively. Creatinine Linear (only for patients not on dialysis). Note: Creatinine < 0.5 and > 5.0 mapped to those values, respectively. Time trenda Ordinal categorical variable with separate category for each 6-month harvest interval. Modeled as linear across the categories. Binary variables Active infectious endocarditis Yes/no Dialysis Yes/no Preoperative atrial fibrillation Yes/no Shock Yes/no Femalea Yes/no Hypertension Yes/no Immunosuppressive treatment Yes/no Preop IABP or inotropes Yes/no Peripheral vascular disease Yes/no Unstable angina (no MI < 7 days) Yes/no Left main disease Yes/no Aortic stenosis Yes/no Mitral stenosis Yes/no Aortic insufficiency Defined as at least moderate (yes/no) Mitral insufficiency Defined as at least moderate (yes/no) Tricuspid insufficiency Defined as at least moderate (yes/no) Categorical variables Chronic lung disease Modeled as linear across categories (none, mild, moderate, severe) CVD/CVA 3 groups: no CVD, CVD no CVA, CVD + CVA Diabetes mellitus 3 groups: insulin diabetes, noninsulin diabetes, other or no diabetes No. diseased coronary vessels 3 groups: < 2-vessel disease; 2-vessel disease; 3-vessel disease. Modeled as linear across the categories MI 3 groups: < 24 hours, 1–21 days, > 21 days or no MI. Note: groups 1 and 2 were subsequently collapsed for some models. Race 3 groups: black, Hispanic, other including Caucasian Status 4 groups: elective, urgent, emergent no resuscitation, salvage or emergent with resuscitation Previous cardiovascular operations 3 groups: 0 previous, 1 previous, = 2 previous CHF and NYHA class 3 groups: no CHF, CHF not NYHA IV, CHF and NYHA IV Interaction terms Age by reoperationa Age by emergent statusa CHF = congestive heart failure; CLD = chronic lung disease; CVA = cerebrovascular accident (stroke); CVD = cardiovascular disease; EF = ejection fraction; IABP = intra-aortic balloon pump; MI = myocardial infarction; NYHA = New York Heart Association. a These variables were forced into each model.

	0123 Risk-Adjusted Operative Mortality for Aortic Valve Replacement (AVR) + CABG Surgery
	Available in attached Excel or csv file at S.2b
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: N/A 5b.1 If competing, why superior or rationale for additive value: N/A

	0130 Risk-Adjusted Deep Sternal Wound Infection
Status	Public and Member Commenting
Steward	The Society of Thoracic Surgeons
Description	percent of patients aged 18 years and older undergoing isolated CABG who develop mediastinitis or deep sternal wound infection within 30 days postoperatively
Type	Outcome
Data Source	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014. Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_CABG_Risk_Model_Specifications-635570255313893234.docx
Level	Facility, Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Numerator – Within 30 days of the surgical procedure Denominator – 12 months
Numerator Statement	Number of patients aged 18 years and older undergoing isolated CABG who develop mediastinitis or deep sternal wound infection within 30 days postoperatively
Numerator Details	Number of isolated CABG procedures in which postoperative mediastinitis [CSternalMedia (STS Adult Cardiac Surgery Database Version 2.73)] or deep sternal wound infection (CIStDeep) is marked "yes" CIStDeep A deep incisional SSI (DIP or DIS) must meet the following criteria: - Infection occurs within 30 days after the operative procedure And - involves deep soft tissues (e.g., fascial and muscle layers) of the incision And - patient has at least 1 of the following: a. purulent drainage from the deep incision but not from the organ/space component of the surgical site b. a deep incision spontaneously dehisces or is deliberately opened by a surgeon and is culture-positive or not cultured when the patient has at least 1 of the following signs or symptoms: fever (>38°C), or localized pain or tenderness. A culture-negative finding does not meet this criterion. c. an abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation, or by histopathologic or radiologic examination d. diagnosis of a deep incisional SSI by a surgeon or attending physician. CSternalMedia Mediastinitis is considered an “organ /space” surgical site infection. The diagnosis of mediastinitis must meet the following criteria according to the CDC: - Infection occurs within 30 days after the operative procedure And - infection involves any part of the body, beyond the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure And - patient has at least 1 of the following: a. purulent drainage from a drain that is placed through a stab wound into the organ/space

	0130 Risk-Adjusted Deep Sternal Wound Infection
	b. organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/space c. an abscess or other evidence of infection involving the organ/space that is found on direct examination, during reoperation, or by histopathologic or radiologic examination d. diagnosis of mediastinitis, an organ/space SSI by a surgeon or attending physician. Sternal osteomyelitis should be classified as mediastinitis
Denominator Statement	All patients undergoing isolated CABG
Denominator Details	Number of isolated CABG procedures. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.
Exclusions	N/A
Exclusion details	N/A
Risk Adjustment	Statistical risk model The details of the risk adjustment model development were published in 2009. The list of candidate risk predictors were selected by a surgeon panel based on prior research and clinical expertise. Initial models were selected using a backwards approach with a significance criterion of 0.001 for removal. Several variables were preselected and forced into the models. These included all of the continuous variables (age, BSA, date of surgery [in 6-month intervals], creatinine, ejection fraction), plus sex and dialysis. Shahian DM, O'Brien SM, Filardo G, Ferraris VA, et al. The Society of Thoracic Surgeons 2008 cardiac surgery risk models: part 1--coronary artery bypass grafting surgery. Ann Thorac Surg. 2009 Jul;88(1 Suppl):S2-22. The definitions of all the variables in the final 2008 CABG model are provided below. (Note: not all were included in the final model for this measure.) Variable Definition _____ Intercept = 1 for all patients Atrial fibrillation = 1 if patient has history of preoperative atrial fibrillation, = 0 otherwise Age = Patient age in years Age function 1 = max (age–50, 0) Age function 2 = max (age–60, 0) Age by reop function = Age function 1 if surgery is a reoperation, = 0 otherwise Age by status function = Age function 1 if status is emergent or salvage, = 0 otherwise BSA function 1 = max (1.4, min [2.6, BSA]) – 1.8 BSA function 2 = (BSA function 1)2 CHF but not NYHA IV = 1 if patient has CHF and is not NYHA class IV, = 0 otherwise CHF and NYHA IV = 1 if patient has CHF and is NYHA class IV, = 0 otherwise CLD mild= 1 if patient has mild chronic lung disease, = 0 otherwise CLD moderate = 1 if patient has moderate chronic lung disease, = 0 otherwise CLD severe = 1 if patient has severe chronic lung disease, = 0 otherwise Creatinine function 1 = max (0.5, min [creatinine, 5.0]) if patient is not on dialysis, = 0 otherwise Creatinine function 2 = max ([creatinine function 1] – 1.0, 0) Creatinine function 3 = max ([creatinine function 1] – 1.5, 0) CVD without prior CVA = 1 if patient has history of CVD and no prior CVA, = 0 otherwise CVD and prior CVA = 1 if patient has history of CVD and a prior CVA, = 0 otherwise

	0130 Risk-Adjusted Deep Sternal Wound Infection
	Diabetes, noninsulin = 1 if patient has diabetes not treated with insulin, = 0 otherwise Diabetes, insulin = 1 if patient has diabetes treated with insulin, = 0 otherwise Ejection fraction function = max (50 – ejection fraction, 0) Female = 1 if patient is female, = 0 otherwise Female by BSA function 1 = BSA function 1 if female, = 0 otherwise Female by BSA function 2 = BSA function 2 if female, = 0 otherwise Hypertension = 1 if patient has hypertension, = 0 otherwise IABP or inotropes= 1 if patient requires IABP or inotropes preoperatively, = 0 otherwise Immunosuppressive treatment = 1 if patient given immunosuppressive therapy within 30 days, = 0 otherwise Insufficiency, aortic = 1 if patient has at least moderate aortic insufficiency, = 0 otherwise Insufficiency, mitral = 1 if patient has at least moderate mitral insufficiency, = 0 otherwise Insufficiency, tricuspid = 1 if patient has at least moderate tricuspid insufficiency, = 0 otherwise Left main disease = 1 if patient has left main disease, = 0 otherwise MI 1 to 21 days = 1 if history of MI 1 to 21 days prior to surgery, = 0 otherwise MI > 6 and < 24 hours = 1 if history of MI >6 and <24 hours prior to surgery, = 0 otherwise MI 6 hours = 1 if history of MI 6 hours prior to surgery, = 0 otherwise No. diseased vessel function = 2 if triple-vessel disease, = 1 if double-vessel disease, = 0 otherwise PCI 6 hours = 1 if patient had PCI 6 hours prior to surgery, = 0 otherwise Peripheral vascular disease = 1 if patient has peripheral vascular disease, = 0 otherwise Race black = 1 if patient is black, = 0 otherwise Race Hispanic = 1 if patient is nonblack Hispanic, = 0 otherwise Race Asian = 1 if patient is nonblack, non-Hispanic, and is Asian, = 0 otherwise Reop, 1 previous operation = 1 if patient has had exactly 1 previous CV surgery, = 0 otherwise Reop, 2 previous operations = 1 if patient has had 2 or more previous CV surgeries, = 0 otherwise Shock = 1 if patient was in shock at time of procedure, = 0 otherwise Status urgent = 1 if status is urgent, = 0 otherwise Status emergent = 1 if status is emergent (but not resuscitation), = 0 otherwise Status salvage = 1 if status is salvage (or emergent plus resuscitation), = 0 otherwise Stenosis aortic = 1 if patient has aortic stenosis, = 0 otherwise Unstable angina = 1 if patient has unstable angina, no MI within 7 days of surgery, = 0 otherwise Available in attached Excel or csv file at S.2b
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram provided

	0130 Risk-Adjusted Deep Sternal Wound Infection
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: N/A 5b.1 If competing, why superior or rationale for additive value: N/A

	0236 Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery
Status	Submitted
Steward	Centers for Medicare & Medicaid Services
Description	percentage of isolated Coronary Artery Bypass Graft (CABG) surgeries for patients aged 18 years and older who received a beta-blocker within 24 hours prior to surgical incision
Type	Process
Data Source	Administrative claims, Paper Medical Records, Electronic Clinical Data : Registry The source is the medical record, which provides patient information for the encounter. Medicare Part B claims and registry data is provided for test purposes. No data collection instrument provided Attachment NQF_0236_CABG_Data_Dictionary_2014.xlsx
Level	Clinician : Group/Practice, Clinician : Individual
Setting	Ambulatory Care : Clinician Office/Clinic
Time Window	This measure is to be reported each time an isolated CABG procedure is performed during the reporting period.
Numerator Statement	Patients who received a beta-blocker within 24 hours prior to surgical incision of isolated CABG surgeries
Numerator Details	Preoperative Beta-blocker Administration Documented: Performance Met: CPT® II 4115F: Beta blocker administered within 24 hours prior to surgical incision OR Preoperative Beta-blocker not Administered for Documented Medical Reasons Append a modified (1P) to the CPT Category II code 4115F to report documented circumstances that appropriately exclude patients from the denominator Medical Performance Exclusion: 4115F with 1P: Documentation of medical reason(s) for not administering beta blocker within 24 hours prior to surgical incision (eg, not indicated, contraindicated, other medical reason) OR Preoperative Beta-blocker not Received, Reason not Otherwise Specified Append a reporting modifier (8P) to CPT Category II code 4115F to report circumstances when the action described in the numerator is not performed and the reason is not otherwise specified. Performance Not Met: 4115F with 8P: Beta blocker not administered within 24 hours prior to surgical incision, reason not otherwise specified Definitions: Medical Reason - Eligible professional must document specific reason(s) for not administering beta-blockers.
Denominator Statement	Isolated CABG surgeries for patients aged 18 years and older
Denominator Details	Definitions: Isolated CABG- Refers to CABG using arterial and/or venous grafts only. Part B claims data will be analyzed to determine “isolated” CABG. DENOMINATOR NOTE: In order to ensure the only surgeries allowed into the denominator for the measure are isolated CABG surgeries, the anesthesiologist CPT code (00562) (which is not specific to isolated CABG), would need to be in conjunction with the CPT indicated for the CABG surgery (33530) and one of the other CABG codes

	0236 Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery
	(33510,33511,33512,33513,33514,33516,33517,33518,33519,33521, 33522,33523,33533,33534,33535,33536) Denominator Criteria (Eligible Cases): Patients aged = 18 years on date of encounter AND Patient encounter during the reporting period (CPT): 00566, 00567, 33510, 33511,33512,33513,33514,33516,33517,33518,33519,33521,33522,33523,33533,33534,33535, 33536 OR Patient encounter during the reporting period (CPT): 33510,33511,33512,33513, 33514,33516,33517,33518,33519,33521,33522,33523,33533,33534,33535,33536 AND Patient encounter during the reporting period (CPT): 00562,33530
Exclusions	Medical Reason - Eligible professional must document specific reason(s) for not administering beta-blockers.
Exclusion details	Documentation of medical reason(s) for not administering beta blocker within 24 hours prior to surgical incision Preoperative Beta-blocker not Administered for Documented Medical Reasons (Append a modified (1P) to the CPT Category II code 4115F to report
Risk Adjustment	No risk adjustment or risk stratification N/A Provided in response box S.15a
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	Numerator (A) / [Performance Denominator (PD) - Denominator Exclusions (B)] (A) = Identify patients who meet the numerator criteria (CPT® II 4115F) (PD) = Patients who are 18 years and older with CABG CPT® codes during the reporting period removing non-is Available in attached appendix at A.1
Copyright / Disclaimer	5.1 Identified measures: 0119 : Risk-Adjusted Operative Mortality for CABG 0117 : Beta Blockade at Discharge 0127 : Preoperative Beta Blockade 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: There are 3 related measures. The differences between these related measures and the submitted measure are listed below: 0117: Beta Blockade at Discharge – target population is the same (18 years and older undergoing isolated CABG), but the measure focus 5b.1 If competing, why superior or rationale for additive value: 0127: Preoperative Beta Blockade •0127 is hospital/acute care setting measure setting, whereas 0236 is hospital/acute care setting measure setting and also outpatient clinician office setting. •Denominator – Measure 0127 is ALL patients undergoing isolated CABG; Denominator of 0236 is Isolated CABG for patients 18 years and older. Measure 0236 has a limited DEN compared to

	0236 Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery
	0127 but is more consistent with the numerator [also patients 18 years and older] •Exclusion Criteria - Measure 0127 has a limited number of exclusions and measure 0236 permits a broader range of exclusions by allowing the eligible provider to document any medical reason for not prescribing the beta blocker within 24 hours preceding surgery. Exclusion for 0127 is "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."

	0354 Hip Fracture Mortality Rate (IQI 19)
Status	Public and Member Commenting
Steward	Agency for Healthcare Research and Quality
Description	In-hospital deaths per 1,000 hospital discharges with hip fracture as a principal diagnosis for patients ages 65 years and older. Excludes periprosthetic fracture discharges, obstetric discharges, and transfers to another hospital. [NOTE: The software provides the rate per hospital discharge. However, common practice reports the measure as per 1,000 discharges. The user must multiply the rate obtained from the software by 1,000 to report in-hospital deaths per 1,000 hospital discharges.]
Type	Outcome
Data Source	Administrative claims While the measure is tested and specified using data from the Healthcare Cost and Utilization Project (HCUP) (see section 1.1 and 1.2 of the measure testing form), the measure specifications and software are specified to be used with any ICD-9-CM-coded ad Available at measure-specific web page URL identified in S.1 Attachment IQI_19_Hip_Fracture_Mortality_Rate_150114.xlsx
Level	Facility
Setting	Hospital/Acute Care Facility
Time Window	Users may specify a time period; but the time period is generally one year. Note that the signal variance parameters assume a one- year time period.
Numerator Statement	Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.
Numerator Details	Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.
Denominator Statement	Discharges, for patients ages 65 years and older, with a principal ICD-9-CM diagnosis code for hip fracture.
Denominator Details	ICD-9-CM Hip fracture diagnosis codes: 82000 FX FEMUR INTRCAPS NOS-CL 82001 FX UP FEMUR EPIPHY-CLOS 82002 FX FEMUR, MIDCERVIC-CLOS 82003 FX BASE FEMORAL NCK-CLOS 82009 FX FEMUR INTRCAPS NEC-CL 82010 FX FEMUR INTRCAP NOS-OPN 82011 FX UP FEMUR EPIPHY-OPEN 82012 FX FEMUR, MIDCERVIC-OPEN 82013 FX BASE FEMORAL NCK-OPEN 82019 FX FEMUR INTRCAP NEC-OPN 82020 TROCHANTERIC FX NOS-CLOS 82021 INTERTROCHANTERIC FX-CL 82022 SUBTROCHANTERIC FX-CLOSE 82030 TROCHANTERIC FX NOS-OPEN 82031 INTERTROCHANTERIC FX-OPN 82032 SUBTROCHANTERIC FX-OPEN 8208 FX NECK OF FEMUR NOS-CL 8209 FX NECK OF FEMUR NOS-OPN
Exclusions	Exclude cases:

	0354 Hip Fracture Mortality Rate (IQI 19)
	• with any-listed ICD-9-CM diagnosis codes for periprosthetic fracture • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium) • with missing discharge disposition (DISP=missing), gender (SEX= missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing)
Exclusion details	ICD-9-CM Periprosthetic fracture diagnosis code: 99644 PERIPROSTHETC FX-PROS JT
Risk Adjustment	Statistical risk model The predicted value for each case is computed using GEE logistic regression and covariates for age (in 5-year age groups), APR-DRG and MDC. The reference population uses use 36 of the 45 states that participated in 2012, for a total of about 30 million hospital discharges from community hospitals). As defined by the American Hospital Association, community hospitals are all non-Federal, short-term, general or other specialty hospitals, excluding hospital units of institutions. Included among community hospitals are public and academic medical centers, specialty hospitals such as obstetrics–gynecology, ear–nose–throat, orthopedic and pediatric institutions. Short-stay rehabilitation, long-term acute care hospitals are excluded from the data used for the reported analyses. The expected rate is computed as the sum of the predicted value for each case divided by the number of cases for the unit of analysis of interest (i.e., county or state). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. The Smoothed Rate is the risk-adjusted rate shrunken to the volume specific rate and the prior year smoothed rate. The specific covariates for this measure are as follows: Sex Female Age 70 to 84 Age 85+ APR-DRG ´3011´ to ‘3012’ (Hip Joint Replacement, minor and moderate) APR-DRG ´3013´ (Hip Joint Replacement, major) APR-DRG ´3014´ (Hip Joint Replacement, extreme) APR-DRG ´3082´ (Hip & Femur Procedures for Trauma Except Joint Replacement, moderate) APR-DRG ´3083´ (Hip & Femur Procedures for Trauma Except Joint Replacement, major) APR-DRG ´3084´ (Hip & Femur Procedures for Trauma Except Joint Replacement, extreme) APR-DRG ´3401´ (Fractures of Femur, minor) APR-DRG ´3402´ (Fractures of Femur, moderate) APR-DRG ´3403´ (Fractures of Femur, major) APR-DRG ´3404´ (Fractures of Femur, extreme) MDC 8 Musculoskeletal System And Connective Tissue MDC 24 Multiple Significant Trauma TRNSFER Transfer-in NOPOUB04 UB-04 Point-of-Origin Data Not Available The risk adjustment coefficient table can be found in the supplemental materials. Available in attached Excel or csv file at S.2b
Stratification	Not applicable

	0354 Hip Fracture Mortality Rate (IQI 19)
Type Score	Rate/proportion better quality = lower score
Algorithm	Each Inpatient Quality Indicator (IQI) expressed as a rate, is defined as outcome of interest/population at risk or numerator/denominator. The Quality Indicators software performs five steps to produce the IQI rates. 1) Discharge-level data is used to mar No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value: None

	0465 Perioperative Anti-platelet Therapy for Patients undergoing Carotid Endarterectomy
Status	Submitted
Steward	Society for Vascular Surgery
Description	percentage of patients undergoing carotid endarterectomy (CEA) who are taking an anti-platelet agent (aspirin or clopidogrel or equivilant such as aggrenox/tiglacor etc) within 48 hours prior to surgery and are prescribed this medication at hospital discharge following surgery
Type	Process
Data Source	Electronic Clinical Data : Registry VQI or other clinical registries that provides data for preoperative and discharge medications for patients undergoing carotid endarterectomy (CPT 35301, ICD 9 38.12 or ICD 10: 2014 ICD-10-PCS 03CH0ZZ Extirpation of Matter from Right Common Carotid Artery Available in attached appendix at A.1 No data dictionary
Level	Facility, Clinician : Group/Practice, Clinician : Individual, Integrated Delivery System
Setting	Ambulatory Care : Clinician Office/Clinic, Hospital/Acute Care Facility
Time Window	This data is collected over a 12 month period as this is a measure reported in a PQRS approved registry.
Numerator Statement	Patients over age 18 undergoing carotid endarterectomy who received anti-platlet agents such as aspirin or aspirin-like agents, or P2y12 antagonists within 48 hours prior to the initiation of surgery AND are prescribed this medication at hospital discharge following surgery.
Numerator Details	Numerator coding, These are fields that are collected via the data form for the VQI registry, which is approved for PQRS: Gxxx1: Documentation that oral anti-platelet therapy was given within 48 hours prior to surgerical incision Gxxx2: No documentation that oral anti-platelet was given within 48 hours prior to the initiation of surgery Gxxx3: Oral anti-platelet therapy prescribed at hospital discharge Gxxx4: Oral anti-platelet therapy NOT prescribed at hospital discharge, Gxxx5 does not apply Gxxx5: Patient expired, left against medical advice, discharged to hospice, or transferred to another acute care hospital or federal hospital
Denominator Statement	Patients over age 18 undergoing carotid endarterectomy.
Denominator Details	This is a patient-level measure that is anticipated to be reported a minimum of once per reporting period. To report this measure use the appropriate G-codes for carotid endarterectomy. It is anticipated that physicians providing the procedure of carotid endarterectomy will report this measure. To report, physician must include: BOTH --Gxxx1 OR Gxxx2 AND --Gxxx3 OR Gxxx4 OR Gxxx5 OR --Gxxx6 OR Gxxx7 Numerator coding: Gxxx1: Documentation that oral anti-platelet therapy was given within 48 hours prior to surgerical incision Gxxx2: No documentation that oral anti-platelet was given within 48 hours prior to the initiation of surgery

	0465 Perioperative Anti-platelet Therapy for Patients undergoing Carotid Endarterectomy
	Gxxx3: Oral anti-platelet therapy prescribed at hospital discharge Gxxx4: Oral anti-platelet therapy NOT prescribed at hospital discharge, Gxxx5 does not apply Gxxx5: Patient expired, left against medical advice, discharged to hospice, or transferred to another acute care hospital or federal hospital Exclusion coding: Gxxx6: Medical reasons for not prescribing anti-platelet therapy: patient allergy to both ASA and clopidogrel; patient admitted on heparin; patient admitted on coumadin/warfarin; patient has active bleeding Gxxx7: Patient admitted from emergency department or patient is a direct admit or patient has other cardiac procedures done during same operation as the CEA Denominator Coding: CPT code 35301 OR ICD-9 code 38.12 2014 ICD-10-PCS 03CH0ZZ Extirpation of Matter from Right Common Carotid Artery, Open Approach 2014 ICD-10-PCS 03CJ0ZZ Extirpation of Matter from Left Common Carotid Artery, Open Approach 2014 ICD-10-PCS 03CK0ZZ Extirpation of Matter from Right Internal Carotid Artery, Open Approach 2014 ICD-10-PCS 03CL0ZZ Extirpation of Matter from Left Internal Carotid Artery, Open Approach
Exclusions	Patients with known intolerance to anti-platlet agents such as aspirin or aspirin-like agents, or P2y12 antagonists, or those on heparin or other intravenous anti-coagulants; patients with active bleeding or undergoing urgent or emergent operations or end
Exclusion details	Exclusion coding: Gxxx6: Medical reasons for not prescribing anti-platelet therapy: patient allergy to both ASA and clopidogrel; patient admitted on heparin; patient admitted on coumadin/warfarin; patient has active bleeding Gxxx7: Patient admitted from em
Risk Adjustment	No risk adjustment or risk stratification
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	the proportion of patients who do recieve anti-platelets as is recommended No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value:

	0533 Postoperative Respiratory Failure Rate (PSI 11)
Status	Public and Member Commenting

	0533 Postoperative Respiratory Failure Rate (PSI 11)
Steward	Agency for Healthcare Research and Quality
Description	Postoperative respiratory failure (secondary diagnosis), mechanical ventilation, or reintubation cases per 1,000 elective surgical discharges for patients ages 18 years and older. Excludes cases with principal diagnosis for acute respiratory failure; cases with secondary diagnosis for acute respiratory failure present on admission; cases in which tracheostomy is the only operating room procedure or in which tracheostomy occurs before the first operating room procedure; cases with neuromuscular disorders, laryngeal or pharyngeal surgery, craniofacial anomalies that had a procedure for the face, esophageal resection, lung cancer, or degenerative neurological disorders; cases with a procedure on the nose, mouth, or pharynx; cases with respiratory or circulatory diseases; and obstetric discharges.
Type	Outcome
Data Source	Administrative claims While the measure is tested and specified using data from the Healthcare Cost and Utilization Project (HCUP) (see section 1.1 and 1.2 of the measure testing form), the measure specifications and software are specified to be used with any ICD-9-CM-coded ad Available at measure-specific web page URL identified in S.1 Attachment PSI_11_Postoperative_Respiratory_Failure_Rate_150114.xlsx
Level	Facility
Setting	Hospital/Acute Care Facility
Time Window	The time period is one year for users with a complete sample of hospital discharges (i.e., "all payer" data). Note that the signal variance parameters assume a one-year time period.
Numerator Statement	Discharges, among cases meeting the inclusion and exclusion rules for the denominator, with either: • any secondary ICD-9-CM diagnosis code for acute respiratory failure; or • any-listed ICD-9-CM procedure codes for mechanical ventilation for 96 consecutive hours or more that occurs zero or more days after the first major operating room procedure code (based on days from admission to procedure); or • any-listed ICD-9-CM procedure codes for mechanical ventilation for less than 96 consecutive hours (or undetermined) that occurs two or more days after the first major operating room procedure code (based on days from admission to procedure); or • any-listed ICD-9-CM procedure codes for reintubation that occurs one or more days after the first major operating room procedure code (based on days from admission to procedure)
Numerator Details	ICD-9-CM Acute respiratory failure diagnosis codes (not present on admission) : 51851 AC RESP FLR FOL TRMA/SRG (begin 2011) 51853 AC/CHR RSP FLR FOL TR/SG (begin 2011) 51881 ACUTE RESPIRATORY FAILURE (drop 2011) 51884 ACUTE & CHRONC RESP FAIL (drop 2011) OR ICD-9-CM Mechanical ventilation for 96 consecutive hours or more procedure code (dated zero or more days after the first major operating room procedure): 9672 CONT INV MEC CEN 96+ HRS ICD-9-CM Mechanical ventilation for less than 96 consecutive hours (or undetermined) procedure codes (dated two or more days after the first major operating room procedure): 9670 CONV INV MEC VEN-UNSP DUR 9671 CONT INV MEC VEN <96 HRS OR

	0533 Postoperative Respiratory Failure Rate (PSI 11)
	ICD-9-CM Reintubation procedure code (dated one or more days after the first major operating room procedure): 9604 INSERT ENDOTRACHEAL TUBE
Denominator Statement	Elective surgical discharges, for patients ages 18 years and older, with any-listed ICD-9-CM procedure codes for an operating room procedure. Elective surgical discharges are defined by specific DRG or MS-DRG codes with admission type recorded as elective
Denominator Details	See Supplementary Materials for the following code sets used in defining the denominator: • Operating Room Procedure Codes • Surgical Discharge DRGs • Surgical Discharge MS-DRGs
Exclusions	Exclude cases: • with a principal ICD-9-CM diagnosis code (or secondary diagnosis present on admission) for acute respiratory failure (see numerator details) • where the only operating room procedure is tracheostomy • where a procedure for tracheostomy occurs before the first operating room procedure† • with any-listed ICD-9-CM diagnosis codes for neuromuscular disorder • with any-listed ICD-9-CM procedure codes for laryngeal or pharyngeal, nose, mouth or pharynx surgery • with any-listed ICD-9-CM procedure codes involving the face and any-listed ICD-9-CM diagnosis codes for craniofacial anomalies • with any-listed ICD-9-CM procedure codes for esophageal resection • with any-listed ICD-9-CM procedure codes for lung cancer • any-listed ICD-9-CM diagnosis codes for degenerative neurological disorder • MDC 4 (diseases/disorders of respiratory system) • MDC 5 (diseases/disorders of circulatory system) • MDC 14 (pregnancy, childbirth, and puerperium) • with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing), or principal diagnosis (DX1=missing)
Exclusion details	See attached Excel spreadsheet containing specifications for the following: • ICD-9-CM Tracheostomy procedure codes • ICD-9-CM Neuromuscular disorder diagnosis codes • ICD-9-CM Laryngeal, pharyngeal, nose, mouth and pharynx surgery procedure codes • ICD-9 Face procedure codes • ICD-9-CM Craniofacial anomalies diagnosis codes • ICD-9-CM Esophageal resection procedure codes • ICD-9-CM Lung cancer procedure codes • ICD-9-CM Degenerative neurological disorder diagnosis codes
Risk Adjustment	Statistical risk model The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age (in 5-year age groups), Modified MS-DRG (MDRG), MDC, transfer in, point of origin not available, procedure days not available and AHRQ comorbidty (COMORB). The expected rate is computed as the sum of the predicted value for each case divided by the number of cases for the unit of analysis of interest (i.e., hospital). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. The specific covariates for this measure are as follows:

	0533 Postoperative Respiratory Failure Rate (PSI 11)		
	Sex	Female	
	Age	18 to 24	
	Age	25 to 29	
	Age	30 to 34	
	Age	35 to 39	
	Age	40 to 44	
	Age	45 to 49	
	Age	50 to 54	
	Age	55 to 59	
	Age	65 to 69	
	Age	70 to 74	
	Age	75 to 79	
	Age	80 to 84	
	Age	85+	
	MDRG	0101	Intracranial vascular procedures w primary diagnosis hemorrhage
	MDRG	0102	Craniotomy w major device implant or acute complex cns primary diagnosis
	MDRG	0103	Craniotomy
	MDRG	0107	Extracranial procedures
	MDRG	0601	Stomach, esophageal and duodenal procedures age > 17
	MDRG	0602	Major small & large bowel procedures
	MDRG	0603	Rectal resection
	MDRG	0604	Peritoneal adhesiolysis
	MDRG	0607	Minor small & large bowel procedure
	MDRG	0610	Hernia procedures except inguinal & femoral
	MDRG	0611	Other digestive system O.R. procedure
	MDRG	0701	Pancreas, liver & shunt procedures
	MDRG	0704	Cholecystectomy except by laparoscope
	MDRG	0705	Laparoscopic cholecystectomy
	MDRG	0801	Combined anterior/posterior spinal fusion
	MDRG	0802	Spinal fusion exc cerv with curvature of the spine or malig
	MDRG	0803	Spinal fusion except cervical
	MDRG	0805	Wnd debrid & skn grft except hand,for muscskelet & conn tiss dis
	MDRG	0806	Revision of hip or knee replacement
	MDRG	0808	Cervical spinal fusion
	MDRG	0811	Hip & femur procedures except major joint
	MDRG	0815	Back & neck procedures except spinal fusion
	MDRG	0826	Other musculoskeletal system & connective tissue O.R. procedure
	MDRG	0901	Skin graft &/or debrid for skn ulcer or cellulitis
	MDRG	1001	Adrenal & pituitary procedures
	MDRG	1003	O.R. procedures for obesity
	MDRG	1102	Major bladder procedures
	MDRG	1103	Kidney and ureter procedures for neoplasm
	MDRG	1104	Kidney and ureter procedures for non-neoplasm
	MDRG	1201	Major male pelvic procedures

	0533 Postoperative Respiratory Failure Rate (PSI 11)
	MDRG 1302 Uterine & adnexa proc for ovarian or adnexal malignancy MDRG 1303 Uterine & adnexa proc for non-ovarian/adnexal malig MDRG 1304 Uterine & adnexa proc for non-malignancy MDRG 1707 Lymphoma & leukemia w major O.R. procedure MDRG 1709 Myeloprolif disord or poorly diff neopl MDRG 1801 Infectious & parasitic diseases w O.R. procedure MDRG 1802 Postoperative or post-traumatic infections w O.R. procedure MDRG 2104 Other O.R. procedures for injuries MDRG 7702 Liver transplant and/or intestinal transplant MDC 1 Nervous System MDC 3 Ear, Nose, Mouth And Throat MDC 6 Digestive System MDC 7 Hepatobiliary System And Pancreas MDC 8 Musculoskeletal System And Connective Tissue MDC 10 Endocrine, Nutritional And Metabolic System MDC 11 Kidney And Urinary Tract MDC 12 Male Reproductive System MDC 13 Female Reproductive System MDC 16 Blood and Blood Forming Organs and Immunological Disorders MDC 17 Myeloproliferative DDs (Poorly Differentiated Neoplasms) MDC 21 Injuries, Poison And Toxic Effect of Drugs MDC Other Other TRNSFER Transfer-in NOPOUB04 UB-04 Point-of-Origin Data Not Available NOPRDAY Procedure Days Data Not Available COMORB Congestive heart failure COMORB Valvular disease COMORB Pulmonary circulation disorder COMORB Hypertension, complicated COMORB Paralysis COMORB Other neurological COMORB Chronic pulmonary diseas COMORB Diabetes w/o chronic complications COMORB Hypothyroidism COMORB Renal failure COMORB Liver disease COMORB Metastatic cancer COMORB Obesity COMORB Weight loss COMORB Deficiency anemias COMORB Alcohol abuse COMORB Drug abuse Available in attached Excel or csv file at S.2b
Stratification	Not applicable.

	0533 Postoperative Respiratory Failure Rate (PSI 11)
Type Score	Rate/proportion better quality = lower score
Algorithm	The observed rate is the number of discharge records where the patient experienced the QI adverse event divided by the number of discharge records at risk for the event. The expected rate is a comparative rate that incorporates information about a refere No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: Both questions(5a.1. and 5a.2.): not applicable – no measures with same focus or target population 5b.1 If competing, why superior or rationale for additive value: No competing measures

	0732 Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories
Status	Submitted
Steward	The Society of Thoracic Surgeons
Description	Surgical volume for pediatric and congenital heart surgery: total programmatic volume and programmatic volume stratified by the 5 Society of Thoracic Surgeons - European Association for Cardio-Thoracic Surgery Congenital Heart Surgery Mortality Categories (STAT Mortality Categories), a multi-institutional validated complexity stratification tool
Type	Structure
Data Source	Electronic Clinical Data : Registry STS Congenital Heart Surgery Database Version 3.0; STS Congenital Heart Surgery Database Version 3.22 went live on January 1, 2014. Available at measure-specific web page URL identified in S.1 No data dictionary
Level	Facility, Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	12 months
Numerator Statement	1) Total number of pediatric and congenital cardiac surgery operations and 2) number of pediatric and congenital cardiac surgery operations in each of the strata of complexity specified by the 5 Society of Thoracic Surgeons - European Association for Cardio-Thoracic Surgery Congenital Heart Surgery Mortality Categories (STAT Mortality Categories), a multi-institutional validated complexity stratification tool
Numerator Details	Please see Appendix.
Denominator Statement	N/A
Denominator Details	N/A
Exclusions	N/A
Exclusion details	N/A
Risk Adjustment	Stratification by risk category/subgroup N/A
Stratification	Please see Appendix
Type Score	Count better quality = higher score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 0339 : RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06) 0734 : Participation in a National Database for Pediatric and Congenital Heart Surgery 0733 : Operative Mortality Stratified by the 5 STAT Mortality Categories 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Measure 0339 is based on administrative data while the STS measures are based on clinical registry data. 5b.1 If competing, why superior or rationale for additive value: Differences between Clinical and Administrative Nomenclature – Several studies have examined the relative utility of clinical and administrative nomenclature

	0732 Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories
	for the evaluation of quality of care for patients undergoing treatment for pediatric and congenital cardiac disease. Evidence from four recent investigations suggests that the validity of coding of lesions seen in the congenitally malformed heart via ICD-9 as used currently in administrative databases in the United States is poor [1, 2, 3, 4].

	0733 Operative Mortality Stratified by the 5 STAT Mortality Categories
Status	Submitted
Steward	The Society of Thoracic Surgeons
Description	percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure, stratified by the five STAT Mortality Levels, a multi-institutional validated complexity stratification tool
Type	Outcome
Data Source	Electronic Clinical Data : Registry STS Congenital Heart Surgery Database Version 3.0; STS Congenital Heart Surgery Database Version 3.22 went live on January 1, 2014. Available at measure-specific web page URL identified in S.1 No data dictionary
Level	Facility, Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Numerator – During the hospitalization regardless of length of stay or within 30 days of surgery if discharged Denominator – 48 months
Numerator Statement	Number of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure, stratified by the five STAT Mortality Levels, a multi-institutional validated complexity stratification tool
Numerator Details	Number of index pediatric and/or congenital heart surgery operations with an operative mortality; Operative mortality is determined by a combination of the following two data elements (STS Congenital Heart Surgery Database Version 3.0): 1. Mortality status at database discharge (MtDBDisStat) 2. Status at 30 days after surgery (Mt30Stat)
Denominator Statement	All patients undergoing index pediatric and/or congenital heart surgery
Denominator Details	Number of index cardiac operations in each level of complexity stratification using the 5 STAT Mortality Categories, a multi-institutional validated complexity stratification tool. Index operation is defined as the first cardiac operation of a hospitalization. For a complete list of operations and their respective STAT category, please see the Appendix.
Exclusions	N/A
Exclusion details	N/A
Risk Adjustment	Stratification by risk category/subgroup N/A
Stratification	Please see Appendix
Type Score	Rate/proportion better quality = lower score
Algorithm	Please refer to numerator and denominator sections as well as the attachments for detailed information. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 0339 : RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06) 0734 : Participation in a National Database for Pediatric and Congenital Heart Surgery

	0733 Operative Mortality Stratified by the 5 STAT Mortality Categories
	0732 : Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programm 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Measure 0339 is based on administrative data while the STS measure is based on clinical registry data. 5b.1 If competing, why superior or rationale for additive value: Differences between Clinical and Administrative Nomenclature – Several studies have examined the relative utility of clinical and administrative nomenclature for the evaluation of quality of care for patients undergoing treatment for pediatric and congenital cardiac disease. Evidence from four recent investigations suggests that the validity of coding of lesions seen in the congenitally malformed heart via ICD-9 as used currently in administrative databases in the United States is poor [1, 2, 3, 4].

	1501 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair
Status	Submitted
Steward	The Society of Thoracic Surgeons
Description	percent of patients aged 18 years and older undergoing MV Repair who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure (This measure applies to the procedure of MV repair, regardless of approach)
Type	Outcome
Data Source	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014. Available at measure-specific web page URL identified in S.1 Attachment S.15._Isolated_Valve_Surgery_Risk_Model_Specifications-635570240110217273.docx
Level	Facility, Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Numerator – During the hospitalization regardless of length of stay or within 30 days of surgery if discharged Denominator – 36 months
Numerator Statement	Number of patients aged 18 years and older undergoing MV Repair who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Numerator Details	Number of isolated MV repair procedures with an operative mortality; Number of isolated MV repair procedures in which Mortality [Mortalty (STS Adult Cardiac Surgery Database Version 2.73)] 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)
Denominator Statement	All patients undergoing isolated MV repair surgery
Denominator Details	Number of isolated mitral valve repair procedures. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.
Exclusions	N/A
Exclusion details	N/A
Risk Adjustment	Statistical risk model The details of risk adjustment model development were published in 2009. The list of candidate risk predictors were selected by a surgeon panel based on prior research and clinical expertise. Age, sex, body surface area, and month of surgery were forced into each model. Other variables were selected in a stepwise fashion using a significance criterion of 0.05 for entry and removal. This criterion was less stringent than that employed in development of the CABG models, because the sample size in the former was so much larger than that which was used for the valve models. O'Brien SM, Shahian DM, Filardo G, Ferraris VA, Haan CK, Rich JB, Normand SL, DeLong ER, Shewan CM, Dokholyan RS, Peterson ED, Edwards FH, Anderson RP. The Society of Thoracic Surgeons 2008 cardiac surgery risk models: part 2--isolated valve surgery. Ann Thorac Surg 2009 Jul;88(1 Suppl):S23-42. The definitions of all the variables in the final 2008 isolated valve surgery models are provided below. (Note not all were included in the final model for this measure.)

	1501 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair
	Candidate Variables Coding Continuous variables Age Linear spline truncated from below at 50 and with knot at 75 Ejection fraction Linear, values > 50 mapped to 50 Body surface area Quadratic polynomial modeled separately for males and females. Note: body surface area < 1.4 and > 2.6 mapped to those values, respectively. Creatinine Linear (only for patients not on dialysis). Note: creatinine < 0.5 and > 5.0 mapped to those values, respectively. Time trend Ordinal categorical variable with separate category for each 6-month harvest interval. Modeled as linear across categories. Binary variables Active infectious endocarditis Yes/no Dialysis Yes/no Preoperative atrial fibrillation Yes/no Shock Yes/no Female Yes/no Hypertension Yes/no Immunosuppressive treatment Yes/no Preoperative IABP or inotropes Yes/no Peripheral vascular disease Yes/no Unstable angina (no MI < 7 days) Yes/no Left main disease Yes/no Aortic stenosis Yes/no Mitral stenosis Yes/no Aortic insufficiency Defined as at least moderate (yes/no) Mitral insufficiency Defined as at least moderate (yes/no) Tricuspid insufficiency Defined as at least moderate (yes/no) Categorical variables Chronic lung disease Modeled as linear across categories (none, mild, moderate, severe) CVD/CVA 3 groups: no CVD, CVD no CVA, CVD + CVA Diabetes mellitus 3 groups: insulin diabetes, noninsulin diabetes, other or no diabetes Number diseased coronary vessels 3 groups: < 2, 2, 3. Modeled as linear across the categories MI 3 groups: < 24 hr, 1–21 days, > 21 days or no MI (groups 1 and 2 were subsequently collapsed) Race 3 groups: Black; Hispanic; Other including Caucasian Status 4 groups: elective, urgent, emergent—no resuscitation, salvage or emergent with resuscitation Previous cardiovascular operations 3 groups: 0 previous, 1 previous, =2 previous CHF and NYHA class 3 groups: no CHF, CHF not NYHA IV, CHF+NYHA IV Interaction terms Age by reoperation Age by emergent status Available in attached Excel or csv file at S.2b
Stratification	N/A
Type Score	Rate/proportion better quality = lower score

	1501 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: N/A 5b.1 If competing, why superior or rationale for additive value: N/A

	1502 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair + CABG Surgery
Status	Submitted
Steward	The Society of Thoracic Surgeons
Description	percent of patients aged 18 years and older undergoing combined MV Repair and CABG who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Type	Outcome
Data Source	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014. Available at measure-specific web page URL identified in S.1 Attachment S.15._Valve-CABG_Surgery_Detailed_Risk_Model_Specifications-635570247318757689.docx
Level	Facility, Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Numerator – During the hospitalization regardless of length of stay or within 30 days of surgery if discharged Denominator – 36 months
Numerator Statement	Number of patients aged 18 years and older undergoing combined MV Repair and CABG who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Numerator Details	Number of MV Repair + CABG procedures with an operative mortality; Number of MV Repair + CABG procedures in which Mortality [Mortalty (STS Adult Cardiac Surgery Database Version 2.73)] 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)
Denominator Statement	All patients undergoing combined MV Repair + CABG
Denominator Details	Number of MV Repair + CABG procedures. The SQL code used to create the function used to identify cardiac procedures is provided in the Appendix.
Exclusions	N/A
Exclusion details	N/A
Risk Adjustment	Statistical risk model The details of risk adjustment model development were published in 2009. The list of candidate risk predictors were selected by a surgeon panel based on prior research and clinical expertise. Age, body surface area, and month of surgery were forced into each model. Other variables were selected in a stepwise fashion using a significance criterion of 0.05 for entry and removal. This criterion was less stringent than that employed in development of the CABG models, because the sample size in the former was so much larger than that which was used for the valve + CABG models. Shahian DM, O'Brien SM, Filardo G, Ferraris VA, Haan CK, Rich JB, Normand SL, DeLong ER, Shewan CM, Dokholyan RS, Peterson ED, Edwards FH, Anderson RP. The Society of Thoracic Surgeons 2008 cardiac surgery risk models: part 3--valve plus coronary artery bypass grafting surgery. Ann Thorac Surg 2009 Jul;88(1 Suppl):S43-62. The definitions of all the variables in the final 2008 valve surgery + CABG models are provided below. (Note not all were included in the final model for this measure.) Candidate Variables Coding

	1502 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair + CABG Surgery
	Continuous variables Agea Linear spline truncated from below at 50 with knot at 75. Ejection fraction Linear; values > 50 mapped to 50 Body surface areaa Quadratic polynomial modeled separately for males and females. Note: BSA < 1.4 and > 2.6 were mapped to those values, respectively. Creatinine Linear (only for patients not on dialysis). Note: Creatinine < 0.5 and > 5.0 mapped to those values, respectively. Time trenda Ordinal categorical variable with separate category for each 6-month harvest interval. Modeled as linear across the categories. Binary variables Active infectious endocarditis Yes/no Dialysis Yes/no Preoperative atrial fibrillation Yes/no Shock Yes/no Femalea Yes/no Hypertension Yes/no Immunosuppressive treatment Yes/no Preop IABP or inotropes Yes/no Peripheral vascular disease Yes/no Unstable angina (no MI < 7 days) Yes/no Left main disease Yes/no Aortic stenosis Yes/no Mitral stenosis Yes/no Aortic insufficiency Defined as at least moderate (yes/no) Mitral insufficiency Defined as at least moderate (yes/no) Tricuspid insufficiency Defined as at least moderate (yes/no) Categorical variables Chronic lung disease Modeled as linear across categories (none, mild, moderate, severe) CVD/CVA 3 groups: no CVD, CVD no CVA, CVD + CVA Diabetes mellitus 3 groups: insulin diabetes, noninsulin diabetes, other or no diabetes No. diseased coronary vessels 3 groups: < 2-vessel disease; 2-vessel disease; 3-vessel disease. Modeled as linear across the categories MI 3 groups: < 24 hours, 1–21 days, > 21 days or no MI. Note: groups 1 and 2 were subsequently collapsed for some models. Race 3 groups: black, Hispanic, other including Caucasian Status 4 groups: elective, urgent, emergent no resuscitation, salvage or emergent with resuscitation Previous cardiovascular operations 3 groups: 0 previous, 1 previous, = 2 previous CHF and NYHA class 3 groups: no CHF, CHF not NYHA IV, CHF and NYHA IV Interaction terms Age by reoperationa Age by emergent statusa CHF = congestive heart failure; CLD = chronic lung disease; CVA = cerebrovascular accident (stroke); CVD = cardiovascular disease; EF = ejection fraction; IABP = intra-aortic balloon pump; MI = myocardial infarction; NYHA = New York Heart Association. a These variables were forced into each model.

	1502 Risk-Adjusted Operative Mortality for Mitral Valve (MV) Repair + CABG Surgery
	Available in attached Excel or csv file at S.2b
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: N/A 5b.1 If competing, why superior or rationale for additive value: N/A

	2038 Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse
Status	Public and Member Commenting
Steward	American Urogynecologic Society
Description	percentage of patients undergoing hysterectomy for the indication of pelvic organ prolapse in which a concomitant vaginal apical suspension (i.e. uterosacral, iliococygeus, sacrospinous or sacral colpopexy, or enterocele repair) is performed.
Type	Process
Data Source	Administrative claims, Electronic Clinical Data : Electronic Health Record No data collection instrument provided No data dictionary
Level	Clinician : Group/Practice, Clinician : Individual
Setting	Hospital/Acute Care Facility
Time Window	12 months
Numerator Statement	The number of patients who have a concomitant vaginal apical suspension (i.e.enterocele repair, uterosacral-, iliococygeus-, sacrospinous- or sacral- colpopexy) at the time of hysterectomy for pelvic organ prolapse.
Numerator Details	Patient who undergo a colpopexy at the time of hysterectomy for prolapse will be included in the numerator if the operative note confirms an appropriate procedure. Those procedures meeting the criteria for colpopexy at the time of hysterectomy will include an enterocele repair, intraperitoneal colpopexy such as a high uterosacral plication or McCall's culdeplasty, extraperitoneal colpopexy (sacrospinous or iliococcygeus fixation), or sacral-colpopexy (laparoscopic and abdominal).
Denominator Statement	Hysterectomy performed for the indication of pelvic organ prolapse
Denominator Details	Hysterectomy (identified by CPT codes) performed for the indication of pelvic organ prolapse (identified by supporting ICD9/ICD10 codes) The codes for ICD9 -> ICD-10 are respectively: 618.1 -> N81.10, Cystocele, midline 618.2 -> N81.12, Cystocele, lateral 618.1 ->N81.2, Incomplete uterovaginal prolapse 618.2 -> N81.2, Incomplete uterovaginal prolapse 618.3 -> N81.3, Complete uterovaginal prolapse 618.4 -> N81.4, Uterovaginal prolapse, unspecified 618.6 -> N81.5, Vaginal enterocele 618.7 -> N81.89, Old laceration of muscles of pelvic floor 618.8 (will not be converted to ICD-10) 618.81 -> N81.82, incompetence or weakening of pubocervical tissue 618.82 -> N81.83, incompetence or weakening of rectovaginal tissue 618.83 -> N81.84, pelvic muscle wasting 618.84 -> N81.2 or N81.85 Cervical stump prolapse 618.89 -> N81.89 Other specified genital prolapse 618.9 -> N81.9 Female genital prolapse 622.6 -> N88.4 Hypertrophic elongation of cervix uteri CPT codes for hysterectomy are: 57530 Trachelectomy 58150 Total Abdominal Hysterectomy (Corpus and Cervix), w/ or w/out Removal of Tube(s),

	2038 Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse
	w/ or w/out Removal of Ovary(s) 58152 Total Abdominal Hysterectomy (Corpus and Cervix), w/ or w/out Removal of Tube(s), w/ or w/out Removal of Ovary(s), with Colpo-Urethrocystopexy (e.g. Marshall-Marchetti-Krantz, Burch) 58180 Supracervical Abdominal Hysterectomy (Subtotal Hysterectomy), w/ or w/out Removal of Tube(s), w/ or w/out Removal of Ovary(s) 58260 Vaginal Hysterectomy, for Uterus 250 G or Less 58262 Vaginal Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s), and/or Ovary(s) 58263 Vaginal Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s), and/or Ovary(s), with Repair of Enterocele 58267 Vaginal Hysterectomy, for Uterus 250 G or Less, with Colpo-Urethrocystopexy (Marshall-Marchetti-Krantz Type, Pereyra Type), w/ or w/out Endoscopic Control 58270 Vaginal Hysterectomy, for Uterus 250 G or Less, with Repair of Enterocele 58275 Vaginal Hysterectomy, with Total or Partial Vaginectomy 58280 Vaginal Hysterectomy, with Total or Partial Vaginectomy, with Repair of Enterocele 58290 Vaginal Hysterectomy, for Uterus Greater than 250 G 58291 Vaginal Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s) 58292 Vaginal Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s), with Repair of Enterocele 58293 Vaginal Hysterectomy, for Uterus Greater than 250 G, with Colpo-Urethrocystopexy (Marshall-Marchetti-Krantz Type, Pereyra Type) 58294 Vaginal Hysterectomy, for Uterus Greater than 250 G, with Repair of Enterocele 58541 Laparoscopy, Surgical, Supracervical Hysterectomy, for Uterus 250 G or Less 58542 Laparoscopy, Surgical, Supracervical Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s) and/or Ovary(s) 58543 Laparoscopy, Surgical, Supracervical Hysterectomy, for Uterus Greater than 250 G 58544 Laparoscopy, Surgical, Supracervical Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s) 58550 Laparoscopy, Surgical, with Vaginal Hysterectomy, for Uterus 250 G or Less 58552 Laparoscopy, Surgical, with Vaginal Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s) and/or Ovary(s) 58553 Laparoscopy, Surgical, with Vaginal Hysterectomy, for Uterus Greater than 250 G 58554 Laparoscopy, Surgical, with Vaginal Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s) 58570 Laparoscopy, Surgical, with Total Hysterectomy, for Uterus 250 G or Less 58571 Laparoscopy, Surgical, with Total Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s) and/or Ovary(s) 58572 Laparoscopy, Surgical, with Total Hysterectomy, for Uterus Greater than 250 G 58573 Laparoscopy, Surgical, with Total Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s)
Exclusions	• Patients with a gynecologic or other pelvic malignancy noted at the time of hysterectomy • Patients undergoing a concurrent obliterative procedure (colpocleisis)
Exclusion details	ICD9 codes: •179 Malignant neoplasm of uterus, part unspecified (ICD-10 C55 same title)

	2038 Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse
	•180 Malignant neoplasm of cervix uteri (ICD-10 C53 same title) •182 Malignant neoplasm of body of uterus (ICD-10 C54 same title) •183 Malignant neoplasm of ovary and
Risk Adjustment	Statistical risk model We plan to risk adjust the measure for prolapse size using a logistic regression model.
Stratification	No, we do not plan to stratify the measure results.
Type Score	Rate/proportion better quality = higher score
Algorithm	1. Target population: Patients of a specific surgeon or group undergoing hysterectomy or trachelecomy for diagnosis of prolaspe as defined by CPT/ICD-9/10 codes are identified 2. Exclusions: Patients with diagnoses of cancer (see ICD-9/10 codes above) and No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value:

	2677 Preoperative evaluation for stress urinary incontinence prior to hysterectomy for pelvic organ prolapse.
Status	Submitted
Steward	American Urogynecologic Society
Description	percentage of women undergoing hysterectomy for pelvic organ prolapse who have preoperative evaluation for stress urinary incontinence.
Type	Process
Data Source	Electronic Clinical Data : Electronic Health Record n/a No data collection instrument provided No data dictionary
Level	Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Twelve months.
Numerator Statement	Number of women undergoing hysterectomy for pelvic organ prolapse who had preoperative evaluation for stress urinary incontinence.
Numerator Details	All patients who underwent hysterectomy for the indication of pelvic organ prolapse for whom there is documentation in the medical record of preoperative evaluation for stress urinary incontinence.
Denominator Statement	All women undergoing hysterectomy (identified by CPT codes) for the indication of pelvic organ prolapse (identified by supporting ICD9 codes).
Denominator Details	Patients undergoing hysterectomy (as identified by the following CPT codes) for the indication of pelvic organ prolapse (as identified by the following ICD-9 codes). CPT codes: 57530, 58150, 58152, 58180, 58260, 58262, 58263, 58267, 58270, 58275, 58280, 58290, 58291, 58292, 58293, 58294, 58541, 58542, 58543, 58544, 58550, 58552, 58553, 58554, 58570, 58571, 58572, 58573 ICD-9 codes: 618.01, 618.02, 618.03, 618.04, 618.05, 618.09, 618.1, 618.2, 618.3, 618.4, 618.6, 618.7, 618.8, 618.81, 618.82, 618.83, 618.84, 618.89, 618.9, 622.6 (Will convert to associated ICD-10 codes if/when change to ICD-10 is made)
Exclusions	None.
Exclusion details	None.
Risk Adjustment	No risk adjustment or risk stratification n/a
Stratification	n/a
Type Score	Rate/proportion better quality = higher score
Algorithm	1) Denominator: using CPT codes and ICD-9 codes (as listed in S.9) identify number of patients undergoing hysterectomy for pelvic organ prolapse. 2) Numerator: Identify by chart review the number of patients in the denominator who have documentation of e No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: 5b.1 If competing, why superior or rationale for additive value:

	2681 Perioperative Temperature Management
Status	Submitted
Steward	American Society of Anesthesiologists
Description	percentage of patients, regardless of age, who undergo surgical or therapeutic procedures under general or neuraxial anesthesia of 60 minutes duration or longer for whom at least one body temperature greater than or equal to 35.5 degrees Celsius (or 95.9 degrees Fahrenheit) was recorded within the 30 minutes immediately before or the 15 minutes immediately after anesthesia end time
Type	Outcome
Data Source	Administrative claims, Electronic Clinical Data Measure data was collected by the National Anesthesia Clinical Outcomes Registry (NACOR) of the Anesthesia Quality Institute. Data was also gathered from NACOR to compare this measure with a similar measure previously endorsed by NQF and currently used in No data collection instrument provided No data dictionary
Level	Clinician : Group/Practice, Clinician : Individual
Setting	Ambulatory Care : Ambulatory Surgery Center (ASC), Hospital/Acute Care Facility
Time Window	Performance is calculated on an annual basis.
Numerator Statement	Patients for whom at least one body temperature greater than or equal to 35.5 degrees Celsius (or 95.9 degrees Fahrenheit) was recorded within the 30 minutes immediately before or the 15 minutes immediately after anesthesia end time.
Numerator Details	CPT® II Code: 4559F: Patients for whom at least one body temperature greater than or equal to 35.5 degrees Celsius (or 95.9 degrees Fahrenheit) was recorded within the 30 minutes immediately before or the 15 minutes immediately after anesthesia end time CPT® II Code: 4559F-1P: Documentation of one of the following medical reason(s) for not achieving at least one body temperature greater than or equal to 35.5 degrees Centigrade or 95.9 degrees Fahrenheit within the 30 minutes immediately before or the 15 minutes immediately after anesthesia end time • Emergency cases • Intentional hypothermia
Denominator Statement	All patients, regardless of age, who undergo surgical or therapeutic procedures under general or neuraxial anesthesia of 60 minutes duration or longer.
Denominator Details	CPT® Code for Procedure: 00100, 00102, 00103, 00104, 00120, 00124, 00120, 00124, 00126, 00140, 00142, 00144, 00145, 00147, 00148, 00160, 00162, 00164, 00170, 00172, 00174, 00176, 00190, 00192, 00210, 00211, 00212, 00214, 00215, 00216, 00218, 00220, 00222, 00300, 00320, 00322, 00326, 00350, 00352, 00400, 00402, 00404, 00406, 00410, 00450, 00454, 00470, 00472, 00474, 00500, 00520, 00522, 00524, 00528, 00529, 00530, 00532, 00534, 00537, 00539, 00540, 00541, 00542, 00546, 00548, 00550, 00560, 00600, 00604, 00620, 00625, 00626, 00630, 00632, 00635, 00640, 00670, 00700, 00702, 00730, 00740, 00750, 00752, 00754, 00756, 00770, 00790, 00792, 00794, 00796, 00797, 00800, 00802, 00810, 00820, 00830, 00832, 00834, 00836, 00840, 00842, 00844, 00846, 00848, 00851, 00860, 00862, 00864, 00865, 00866, 00868, 00870, 00872, 00873, 00880, 00882, 00902, 00904, 00906, 00908, 00910, 00912, 00914, 00916, 00918, 00920, 00921, 00922, 00924, 00926, 00928, 00930, 00932, 00934, 00936, 00938, 00940, 00942, 00944, 00948, 00950, 00952, 01112, 01120, 01130, 01140, 01150, 01160, 01170, 01173, 01180, 01190, 01200, 01202, 01210, 01212, 01214, 01215, 01220, 01230, 01232, 01234, 01250, 01260, 01270, 01272, 01274, 01320, 01340, 01360, 01380, 01382, 01390, 01392, 01400, 01402, 01404, 01420, 01430, 01432, 01440, 01442, 01444, 01462, 01464, 01470, 01472, 01474, 01480, 01482, 01484, 01486, 01490, 01500, 01502, 01520, 01522, 01610, 01620, 01622, 01630, 01634, 01636, 01638,

	2681 Perioperative Temperature Management
	01650, 01652, 01654, 01656, 01670, 01680, 01682, 01710, 01712, 01714, 01716, 01730, 01732, 01740, 01742, 01744, 01756, 01758, 01760, 01770, 01772, 01780, 01782, 01810, 01820, 01829, 01830, 01832, 01840, 01842, 01844, 01850, 01852, 01860, 01924, 01925, 01926, 01930, 01931, 01932, 01933, 01935, 01936, 01951, 01952, 01961, 01962, 01963, 01965, 01966, 01968, 01969 AND CPT Category II Code: CPT® II 4255F: Duration of general or neuraxial anesthesia 60 minutes or longer, as documented in the anesthesia record
Exclusions	The measure excludes patients undergoing cardiopulmonary bypass and those patients receiving regional nerve block or monitored anesthesia care without general anesthesia.
Exclusion details	The measure excludes patients undergoing cardiopulmonary bypass and those patients receiving regional nerve block or monitored anesthesia care without general anesthesia: 00561, 00562, 00563, 0056, 00567, 00580, 01958, 01960, 01967, 01991, 01992, CPT Codes with –QS Modifier
Risk Adjustment	No risk adjustment or risk stratification The measure is not risk adjusted. Provided in response box S.15a
Stratification	The measure is not stratified.
Type Score	Rate/proportion better quality = higher score
Algorithm	Step 1 - Identify event to see "relationship to desired outcome"; Inadvertent or unexpected or unintended drop in core temperature during surgery (perioperative hypothermia) in patients, regardless of age, who undergo surgical or therapeutic procedures un No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 0454 : Perioperative Temperature Management 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: NQF #0454 was withdrawn by the American Society of Anesthesiologists (ASA) in May 2014 during the maintenance process. The Surgery Steering Committee noted that their were substantial differences between the process measure (NQF #0454) and the Outcome mea 5b.1 If competing, why superior or rationale for additive value: The measure is not competing with another NQF-endorsed measure.

	2683 Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery
Status	Submitted
Steward	The Society of Thoracic Surgeons
Description	percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Type	Outcome
Data Source	Electronic Clinical Data : Registry STS Congenital Heart Surgery Database Version 3.0; STS Congenital Heart Surgery Database Version 3.22 went live on January 1, 2014. Available at measure-specific web page URL identified in S.1 No data dictionary
Level	Facility, Clinician : Group/Practice
Setting	Hospital/Acute Care Facility
Time Window	Numerator – During the hospitalization regardless of length of stay or within 30 days of surgery if discharged Denominator – 48 months
Numerator Statement	percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Numerator Details	Number of index pediatric and/or congenital heart surgery operations with an operative mortality; Operative mortality is determined by a combination of the following two data elements (STS Congenital Heart Surgery Database Version 3.0): 1. Mortality status at database discharge (MtDBDisStat) 2. Status at 30 days after surgery (Mt30Stat)
Denominator Statement	All patients undergoing index pediatric and/or congenital heart surgery
Denominator Details	Number of index pediatric and/or congenital heart surgery operations. Index operation is defined as the first cardiac operation of a hospitalization. For a complete list of operations, please refer to the data collection form and data specifications documents which can be accessed using the URLs provided in S.1 above.
Exclusions	- Patients weighing less than or equal to 2,500 grams undergoing isolated patent arterial duct (PDA) ligation as their primary procedure are excluded. We acknowledge that mortality after surgical PDA closure in low-birth weight premature infants can be related to surgical judgment or technique; however, the vast majority of deaths in this patient population are multi-factorial and largely unrelated to the surgical procedure in time and by cause. Therefore, because mortality in this patient group could potentially impact significantly on the expression of overall programmatic mortality, a decision was made to exclude from mortality analysis patients weighing less than or equal to 2,500 g undergoing PDA ligation as their primary procedure. - All operations where the primary procedure is either pectus repair or bronchoscopy are not classified as cardiac operations (i.e., they are thoracic procedures) and thus, they are excluded from the denominator
Exclusion details	Weight in kilograms [WeightKg (STS Congenital Heart Surgery Database Version 3.0)] = 2.5 kg and primary procedure (PrimProc) is marked “1330 = PDA closure, Surgical”; primary

	2683 Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery
	procedure (PrimProc) is marked “1430 = Pectus repair” or “1870 = Bronchoscopy”
Risk Adjustment	Statistical risk model Please see the testing attachment for detailed information. The manuscript providing details of risk adjustment model development was submitted for publication in November 2014. This study’s objective was to develop an operative mortality risk model incorporating procedure type and patient factors to adjust for case mix in the analysis of congenital cardiac surgery outcomes. A working group consisting of statisticians, cardiologists, and cardiac surgeons provided input for the choice of risk factors and the specification of an appropriate statistical model. Coefficients of the final model will be re-estimated on a rolling basis to ensure it remains well calibrated for its intended use in the STS-CHSD participant feedback report. Candidate covariates for case mix adjustment were selected by a group of cardiologists and surgeons after reviewing the STS data collection form, prior STS exploratory analyses, and relevant literature. All candidate variables available in Version 3.0 of the STS data collection form were individually assessed from the standpoint of data quality, risk factor prevalence, and precise data definitions. In selecting covariates, principles of case mix adjustment dictate not to adjust for factors that occur after the start of the care episode or for care processes that are part of the treatment being evaluated. Doing so may “adjust away” differences in outcomes that result from the adoption of more or less effective care practices by different providers. Although theory dictates not to adjust for discretionary care processes, special consideration may be given to factors such as preoperative mechanical circulatory support and preoperative ventilation support which are strongly associated with a high-risk preoperative presentation and may capture an otherwise unmeasured aspect of patient risk. Candidate Covariates: Potentially relevant pre-procedural variables in Version 3.0 of the STS database are collected under the category headings of demographics, noncardiac congenital anatomic abnormalities, chromosomal abnormalities, syndromes, hospitalization, preoperative factors, diagnosis, and procedure. For screening variables in the “preoperative factors” category, risk factors were considered for inclusion if their prevalence was at least 2% of the study sample or if the number of deaths among affected patients was at least 20 in any one or more of 4 age groups in a prior analysis using STS data from 2010-2012. From a list of 12 risk factors meeting this criterion, the factors chosen based on their strong association with outcomes were preoperative/preprocedural mechanical circulatory support, shock persistent at time of surgery, renal failure requiring dialysis and/or renal dysfunction, mechanical ventilation to treat cardiorespiratory failure, preoperative neurological deficit, and presence of any other STS-defined preoperative factor not listed above. In addition to these variables from the preoperative factors category, the other variables considered on the basis of potential prognostic importance were primary procedure, STAT Category, age, sex, weight, prematurity defined as birth at less than 37 weeks gestation, at least one prior cardiothoracic operation, presence of any STS-defined noncardiac anatomic abnormality, and presence of any STS-defined chromosomal abnormality or syndrome. Provided in response box S.15a
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram provided
Copyright / Disclaimer	5.1 Identified measures: 0339 : RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06) 0734 : Participation in a National Database for Pediatric and Congenital Heart Surgery 0733 : Operative Mortality Stratified by the 5 STAT Mortality Categories 0732 : Surgical Volume for Pedia

	2683 Risk-Adjusted Operative Mortality for Pediatric and Congenital Heart Surgery
	5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: Measure 0339 is based on administrative data while the STS measure is based on clinical registry data. 5b.1 If competing, why superior or rationale for additive value: Differences between Clinical and Administrative Nomenclature – Several studies have examined the relative utility of clinical and administrative nomenclature for the evaluation of quality of care for patients undergoing treatment for pediatric and congenital cardiac disease. Evidence from four recent investigations suggests that the validity of coding of lesions seen in the congenitally malformed heart via ICD-9 as used currently in administrative databases in the United States is poor [1, 2, 3, 4].

	2687 Hospital Visits after Hospital Outpatient Surgery
Status	Public and Member Commenting
Steward	The Centers for Medicare & Medicaid Services (CMS)
Description	Facility-level, post-surgical risk-standardized hospital visit ratio (RSHVR) of the predicted to expected number of all-cause, unplanned hospital visits within 7 days of a same-day surgery at a hospital outpatient department (HOPD) among Medicare fee-for-service (FFS) patients aged 65 years and older.
Type	Outcome
Data Source	Administrative claims Medicare administrative claims and enrollment data No data collection instrument provided Attachment Surgery_Measure_Data_Dictionary_01-14-15_v1.0_FINAL.xlsx
Level	Facility
Setting	Other Hospital Outpatient Department
Time Window	Numerator time window: 7 days after same-day surgery for all-cause, unplanned hospital visits. Denominator time window: Any HOPD same-day surgery performed during the measurement period (e.g., 2 years). Risk-adjustment look-back period: 1 year prior to
Numerator Statement	The outcome is all-cause, unplanned hospital visits, defined as 1) an inpatient admission directly after the surgery or 2) an unplanned hospital visit (emergency department [ED] visit, observation stay, or unplanned inpatient admission) occurring after discharge and within 7 days of the surgical procedure.
Numerator Details	Outcome Definition The outcome is all-cause, unplanned hospital visits, defined as 1) an inpatient admission directly after the surgery or 2) an unplanned hospital visit (ED visit, observation stay, or unplanned inpatient admission) occurring after discharge and within 7 days of the surgical procedure. If more than one unplanned hospital visit occurs, only the first hospital visit within the outcome timeframe is counted in the outcome. Identification of Planned Admissions The measure outcome includes any inpatient admission within the first 7 days after the surgery, unless that inpatient admission is deemed a "planned" admission. The measure considers inpatient admissions occurring on the day of the surgery (Day 0) and Day 1 post-surgery "unplanned" as the vast majority of these admissions are inpatient admissions directly following surgery and therefore likely represent complications of care, inpatient admissions primarily for non-clinical reasons (such as lack of transport home), and inpatient admissions for logistical issues (such as delayed start of surgery). For inpatient admissions occurring on Days 2-7 after surgery, the measure only counts unplanned admissions in the outcome. Planned admissions are those planned by providers for anticipated medical treatment or procedures that must be provided in the inpatient setting. The Centers for Medicare & Medicaid Services (CMS) seeks to count only unplanned admissions in the measure outcome, because variation in planned admissions does not reflect quality differences. The measure identifies planned admissions using an algorithm that considers the inpatient admission's procedures and diagnoses and classifies the inpatient admission as planned or unplanned. We based the planned admission algorithm on the CMS Planned Readmission Algorithm Version 3.0, which CMS created for its hospital-wide readmission measure. In brief, the algorithm identifies inpatient admissions that are typically planned and may occur after the patient's index event. The algorithm always considers a few specific, limited types of care planned (e.g., major organ transplant, rehabilitation, or maintenance chemotherapy). Otherwise, the algorithm defines a planned admission as a non-acute inpatient admission for a scheduled

	2687 Hospital Visits after Hospital Outpatient Surgery
	procedure (e.g., total hip replacement or cholecystectomy), and the algorithm never considers inpatient admissions for acute illness or for complications of care planned. For example, the algorithm considers hip replacement unplanned if hip fracture (an acute condition) is the discharge diagnosis, but planned if osteoarthritis (a non-acute condition) is the discharge diagnosis. The algorithm considers inpatient admissions that include potentially planned procedures with acute diagnoses or that might represent complications of a surgery unplanned and thus counts these inpatient admissions in the measure outcome. Appendix C of the attached technical report contains the detailed algorithm used to identify planned admissions. Applying the algorithm to 2010 Medicare 20% FFS data (2010 Development Full Sample, see Measure Testing Form Section 1.2 and 1.7 for full description of the dataset), planned admissions constituted 2% of all hospital visits and 3% of all inpatient admissions within 7 days of outpatient surgery. Please see Data Dictionary, sheet "S.6 ICD9-ICD10 PlannedAlgorithm," for the ICD-9 to ICD-10 crosswalk for the Planned Readmission Algorithm. Definition of ED and Observation Stay The measure defines ED visits and observation stays using one of the specified billing codes or revenue center codes identified in Medicare Part B Outpatient hospital claims. The codes that define ED visits and observation stays are in the attached Data Dictionary, sheet "S.6 Numerator-ED Obs Def."
Denominator Statement	Outpatient same-day surgeries performed at HOPDs for Medicare FFS patients aged 65 years and older with the exception of eye surgeries and same day surgeries performed concurrently with high-risk procedures.
Denominator Details	This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year). We therefore use this field to define the measure cohort. Target Population The target population is Medicare FFS patients aged 65 years and older undergoing same-day surgery (those that do not typically require an overnight stay) at HOPDs. We limit the measure cohort to older Medicare FFS patients because national data linking patient risk factors, procedures, and outcomes across care settings is only available for this group. We further limit the measure to patients who have been enrolled in Part A and Part B Medicare for the 12 months prior to the date of surgery to ensure we have adequate data for identifying comorbidities for risk adjustment. The measure includes surgeries if a claim is present in the Medicare outpatient data indicating an HOPD same-day surgery. Specifically, we identify physician claims as Outpatient Hospital Department/or Physician Office by the Line Place of Service Code in the Part B Carrier Standard Analytical File (SAF). We then link these claims to Outpatient SAF claims to identify the HOPD where the surgery took place. If there is no match in the Outpatient SAF claims, we link the claim to the inpatient facility claims (contained in the Medicare Provider Analysis and Review [MedPAR] file) if there is a claim that falls within 3 days of the initial physician claim. Claims that are linked to inpatient files are deemed to fall under the 3-day payment window (see description below). Surgeries for which an outpatient claim is not filed are not included in the measure cohort. "Same-day surgeries" are substantive surgeries and procedures listed on Medicare's list of covered ambulatory surgery center (ASC) procedures for 2013 (with the exception of eye surgeries). Medicare developed this list for ASCs to identify surgeries that can be safely-performed as same-day surgeries and do not typically require an overnight stay. This list of surgeries is publicly available at: http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ASCPayment/ASC-Regulations-and-Notices-Items/CMS-1589-FC.html (refer to

	2687 Hospital Visits after Hospital Outpatient Surgery
	Addendum AA on the website). Surgeries on the ASC list of covered procedures do not involve or require: major or prolonged invasion of body cavities, extensive blood loss, major blood vessels, or care that is either emergent or life-threatening. Although Medicare developed this list of surgeries for ASCs, we use it for this HOPD measure for two reasons. First, it aligns with our target cohort of surgeries that have a low to moderate risk profile and are safe to be performed as same-day surgeries. By only including surgeries on this list in the measure, the measure effectively does not include surgeries performed at HOPDs that typically require an overnight stay which are more complex, higher risk surgeries. Second, we use this list of surgeries for practical considerations. The ASC list is publicly available, is annually reviewed and updated by Medicare, and includes a transparent public comment submission and review process for addition and/or removal of procedures codes. Using an existing, defined list of same-day surgeries, rather than defining surgeries de novo, is useful for long-term measure maintenance. Procedures listed in Medicare's list of covered ASC procedures are defined using Healthcare Common Procedure Coding System (HCPCS) and Common Procedural Terminology (CPT) codes. Ambulatory surgeries include a heterogeneous mix of non-surgical procedures, minor surgeries, and more substantive surgeries. We want to include substantive surgeries but not very low risk (minor) surgeries or non-surgical procedures which typically have a high volume and a very low outcome rate. We identify substantive surgeries using the global surgery indicator (GSI) value 090 which identifies surgeries of greater complexity and follow-up care based on Work Relative Value Units (RVUs). The measure does not include minor non-surgical procedures (GSI code 000) or minor surgeries (GSI code 010), with one exception: the measure includes cystoscopy with intervention because this is a common procedure, often performed for therapeutic intervention by surgical teams, and has an outcome rate similar to other surgeries in the measure cohort. Please see Data Dictionary, sheet "S.9 Denominator Details-Cystos," for list of cystoscopy codes included in the cohort. The measure cohort does not include eye surgeries. Although eye surgery is considered a substantive (GSI 090) surgery, its risk profile is more representative of "minor" surgery, in that it is characterized by high volume and a low outcome ratio. Please see Data Dictionary, sheet "S.9 Denominator Details-Eye," for list of eye surgery codes not included in the cohort. Please see Data Dictionary, sheet "S.9 Denominator Details-Cohort," for surgery codes that define the measure cohort. Finally, when multiple surgeries occur concurrently, the measure only includes surgeries that are performed concurrently with another low to moderate risk procedure listed on Medicare's list of covered ASC procedures. The measure does not include same-day surgeries occurring concurrently with a higher risk procedure such as an inpatient-only surgery. Capture of Surgeries Affected by the Medicare 3-Day Payment Window Policy: The Medicare 3-day payment window policy affects some surgeries performed at HOPDs. The policy deems outpatient services (including surgeries) provided by a hospital or any Part B entity wholly owned or operated by a hospital (such as an HOPD) in the three calendar days preceding the date of a beneficiary's inpatient admission as related to the admission [1]. For outpatient surgeries affected, the HOPD facility claim (for the technical portion of the surgery) is bundled with the inpatient claim and is not recorded in the Medicare Outpatient SAF; the Medicare Physician claim for professional services rendered is still submitted separately. To ensure the capture of HOPD surgeries affected by the policy, the measure identifies in the Medicare Carrier SAF physician claims for surgery in the HOPD setting with an inpatient admission within three days and lacking a corresponding HOPD facility claim. The measure then attributes the surgery identified as affected by this policy to the appropriate HOPD using the facility provider ID from the inpatient claim. Citations

	2687 Hospital Visits after Hospital Outpatient Surgery
	1. Centers for Medicare & Medicaid Services (CMS). Three Day Payment Window. 2013; http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Three_Day_Payment_Window.html.
Exclusions	The measure excludes surgeries for patients without continuous enrollment in Medicare FFS Parts A and B in the 1 month after the surgery. The measure excludes these patients to ensure all patients have full data available for outcome assessment. The exclusion prevents unfair distortion of performance results. The measure excludes surgeries for patients without continuous enrollment in Medicare FFS Parts A and B in the 1 month after the surgery.
Exclusion details	Lack of continuous enrollment in Medicare FFS for 1 month after the outpatient same-day surgery is determined by patient enrollment status in FFS Parts A and B using the Medicare enrollment file. The enrollment indicators must be appropriately marked for the month(s) which fall within 30 days of surgery date.
Risk Adjustment	Statistical risk model Our approach to risk adjustment is tailored to, and appropriate for, a publicly reported outcome measure as articulated in published scientific guidelines [1,2]. The measure uses a two-level hierarchical logistic regression model to estimate RSHVRs. This approach accounts for the clustering of patients within HOPDs and variation in sample size. The risk-adjustment model has 25 patient-level variables (age and 24 comorbidity variables) and 2 surgical complexity variables. With the exception of morbid obesity, which we define using an individual ICD-9 diagnosis code, we define comorbidity variables using CMS Condition Categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9 diagnosis codes. A map showing the assignment of ICD-9 codes to CCs can be found in the attached Data Dictionary, sheet "S.14 CC-ICD-9 Map." Data Dictionary, sheet "S.14 ICD9-ICD10 Morbid Obesity" contains the crosswalk of ICD-9 to ICD-10 codes for morbid obesity. Certain CCs are considered possible complications of care and are not risk-adjusted for if they only occur at the surgery. See attached Data Dictionary, sheet "S.14 Stat Risk Model Method" for CCs that are considered possible complications of care and are not risk-adjusted for if they only occur at the surgery. The measure risk adjusts for surgical procedural complexity using two variables. First, it adjusts for surgical procedural complexity using the Work RVU of the procedure. Work RVUs are assigned to each CPT procedure code and approximate surgical procedural complexity by incorporating elements of physician time and effort. For patients with multiple concurrent CPT procedure codes, we risk adjust for the CPT code with the highest Work RVU value. Second, it classifies each surgery into an anatomical body system group using the Agency for Healthcare Research and Quality (AHRQ) Clinical Classification System (CCS) [4]. The measure uses the body system variable, in addition to the Work RVU of the surgery, to account for organ-specific difference in risk and complications which are not adequately captured by the Work RVU alone. This approach to risk adjustment for surgical procedural complexity is similar to that described in the literature and used for risk adjustment in the American College of Surgeons' National Surgical Quality Improvement Program (NSQIP) [5]. The coding list for the body systems is available at: http://www.hcup-us.ahrq.gov/toolssoftware/ccs/AppendixDMultiPR.txt Model Variables Age Cancer (CC 7-12) Diabetes and DM Complications (CC 15-19, 119, 120) Disorders of Fluid/Electrolyte/Acid-Base (CC 23) Intestinal Obstruction/Perforation (CC 31) Inflammatory Bowel Disease (CC 33)

	2687 Hospital Visits after Hospital Outpatient Surgery
	Bone/Joint/Muscle Infections/Necrosis (CC 37) Hematological Disorders Including Coagulation Defects and Iron Deficiency (CC 44, 46, 47) Dementia or Senility (CC 49-50) Psychiatric Disorders (CC 54-60) Hemiplegia, Paraplegia, Paralysis, Functional Disability (CC 67-69, 100-103, 177-178) Other Significant CNS Disease (CC 72-75) Cardiorespiratory Arrest, Failure, and Respiratory Dependence (CC 77-79) Chronic Heart Failure (CC 80) Ischemic Heart Disease (CC 81-84) Hypertension and Hypertensive Disease (CC 89-91) Arrhythmias (CC 92-93) Vascular Disease (CC 104-106) Chronic Lung Disease (CC 108-110) UTI and Other Urinary Tract Disorders (CC 135-136) Pelvic Inflammatory Disease and Other Specified Female Genital Disorders (CC 138) Chronic Ulcers (CC 148-149) Cellulitis, Local Skin Infection (CC 152) Prior Significant Fracture (CC 157-159) Morbid Obesity (ICD-9 278.01) Work RVUs Body System Operated On Citations 1. Krumholz HM, Brindis RG, Brush JE, et al. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation. 2006; 113 (3): 456-462. 2. Normand S-LT, Shahian DM. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci. 2007; 22 (2): 206-226. 3. National Quality Forum. Measure Evaluation Criteria and Guidance on Evaluation. 2013; http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=73365, July 2013. 4. HCUP Clinical Classifications Software for Services and Procedures. Healthcare Cost and Utilization Project (HCUP). 2008. Agency for Healthcare Research and Quality, Rockville, MD http://www.hcup-us.ahrq.gov/toolssoftware/ccs_svcsproc/ccssvcproc.jsp, 2014. 5. Raval MV, Cohen ME, Ingraham AM, et al. Improving American College of Surgeons National Surgical Quality Improvement Program risk adjustment: incorporation of a novel procedure risk score. Journal of the American College of Surgeons. Dec 2010;211(6):715-723 Available in attached Excel or csv file at S.2b
Stratification	Not applicable. This measure is not stratified.
Type Score	Ratio better quality = lower score
Algorithm	Please see Appendix D of attached measure technical report for details. Available in attached appendix at A.1
Copyright / Disclaimer	5.1 Identified measures: 2539 : Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy

	2687 Hospital Visits after Hospital Outpatient Surgery
	5a.1 Are specs completely harmonized? Yes 5a.2 If not completely harmonized, identify difference, rationale, impact: Not applicable 5b.1 If competing, why superior or rationale for additive value: Not applicable

Appendix G: Related and Competing Measures

Comparison of NQF #0236 and NQF #0127

	0236: Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery	0127: Preoperative Beta Blockade
Steward	Centers for Medicare & Medicaid Services	Society of Thoracic Surgeons
Description	percentage of isolated Coronary Artery Bypass Graft (CABG) surgeries for patients aged 18 years and older who received a beta-blocker within 24 hours prior to surgical incision	percent of patients aged 18 years and older undergoing isolated CABG who received beta blockers within 24 hours preceding surgery.
Type	Process	Process
Data Source	Administrative claims, Paper Medical Records, Electronic Clinical Data : Registry The source is the medical record, which provides patient information for the encounter. Medicare Part B claims and registry data is provided for test purposes. No data collection instrument provided Attachment NQF_0236_CABG_Data_Dictionary_2014.xlsx	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database – Version 2.73
Level	Clinician : Group/Practice, Clinician : Individual	Clinician : Individual, Clinician : Group/Practice, Clinician : Team, Facility, Population : County or City, Population : National, Population : Regional, Population : State
Setting	Ambulatory Care : Clinician Office/Clinic	Hospital/Acute Care Facility
Numerator Statement	Patients who received a beta-blocker within 24 hours prior to surgical incision of isolated CABG surgeries	Number of patients undergoing isolated CABG who received beta blockers within 24 hours preceding surgery
Numerator Details	Preoperative Beta-blocker Administration Documented: Performance Met: CPT® II 4115F: Beta blocker administered within 24 hours prior to surgical incision OR Preoperative Beta-blocker not Administered for Documented Medical Reasons Append a modified (1P) to the CPT Category II code 4115F to report documented circumstances that appropriately exclude patients from the denominator Medical Performance Exclusion: 4115F with 1P: Documentation of medical reason(s) for not administering beta blocker within 24 hours	Number of isolated CABG procedures in which preoperative beta blockers [MedBeta (STS Adult Cardiac Surgery Database Version 2.73, Sequence number 1710)] is marked "yes"

	0236: Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery	0127: Preoperative Beta Blockade
	prior to surgical incision (eg, not indicated, contraindicated, other medical reason) OR Preoperative Beta-blocker not Received, Reason not Otherwise Specified Append a reporting modifier (8P) to CPT Category II code 4115F to report circumstances when the action described in the numerator is not performed and the reason is not otherwise specified. Performance Not Met: 4115F with 8P: Beta blocker not administered within 24 hours prior to surgical incision, reason not otherwise specified Definitions: Medical Reason - Eligible professional must document specific reason(s) for not administering beta-blockers.	
Denominator Statement	Isolated CABG surgeries for patients aged 18 years and older	All patients undergoing isolated CABG
Denominator Details	Definitions: Isolated CABG- Refers to CABG using arterial and/or venous grafts only. Part B claims data will be analyzed to determine "isolated" CABG. DENOMINATOR NOTE: In order to ensure the only surgeries allowed into the denominator for the measure are isolated CABG surgeries, the anesthesiologist CPT code (00562) (which is not specific to isolated CABG), would need to be in conjunction with the CPT indicated for the CABG surgery (33530) and one of the other CABG codes (33510,33511,33512,33513,33514,33516,33517,33518,33519,33521, 33522,33523,33533,33534,33535,33536) Denominator Criteria (Eligible Cases): Patients aged = 18 years on date of encounter AND Patient encounter during the reporting period (CPT): 00566, 00567, 33510, 33511,33512,33513,33514,33516,33517,33518,33519,33521,33522,33523,33533,33534,33535, 33536 OR	Number of isolated CABG procedures Isolated CABG is determined as a procedure for which all of the following apply (note: full terms for STS field names are provided in brackets []): - OpCAB [Coronary Artery Bypass] is marked "Yes" - (VADProc [VAD Implanted or Removed] is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD [Unplanned VAD Insertion] is marked "yes") - OCarASDTy [Atrial Septal Defect Repair] is marked "PFO" or "missing" - OCarAFibAProc [Atrial Fibrillation Ablation Procedure] is marked "primarily epicardial" or "missing" and - OpValve [Valve Surgery], VSAV [Aortic Valve Procedure], VSAVPr [Aortic Valve Procedure Performed], ResectSubA [Resection of sub-aortic stenosis], VSMV [Mitral Valve Procedure], VSMVPr [Mitral Valve Procedure Performed], OpTricus [Tricuspid Valve Procedure Performed], OpPulm [Pulmonic Valve Procedure

	0236: Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery	0127: Preoperative Beta Blockade
	Patient encounter during the reporting period (CPT): 33510,33511,33512,33513, 33514,33516,33517,33518,33519,33521,33522,33523,33533,33534,33535,33536 AND Patient encounter during the reporting period (CPT): 00562,33530	Performed], OpONCard [Other Non-Cardiac Procedure], OCarLVA [Left Ventricular Aneurysm Repair], OCarVSD [Ventricular Septal Defect Repair], OCarSVR [Surgical Ventricular Restoration], OCarCong [Congenital Defect Repair], OCarTrma [surgical procedure for an injury due to Cardiac Trauma], OCarCrTx [Cardiac Transplant], OCAoProcType [Aortic Procedure Type], EndoProc [Endovascular Procedure (TEVAR)], OCTumor [resection of an intracardiac tumor], OCPulThromDis [Pulmonary Thromboembolectomy], OCarOthr [other cardiac procedure] are all marked “no” or “missing”
Exclusions	Medical Reason - Eligible professional must document specific reason(s) for not administering beta-blockers.	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.
Exclusion Details	Documentation of medical reason(s) for not administering beta blocker within 24 hours prior to surgical incision Preoperative Beta-blocker not Administered for Documented Medical Reasons (Append a modified (1P) to the CPT Category II code 4115F to report documented circumstances that appropriately exclude patients from the denominator) Medical Performance Exclusion: 4115F with 1P: Documentation of medical reason(s) for not administering beta blocker within 24 hours prior to surgical incision (eg, not indicated, contraindicated, other medical reason)	Procedures with preoperative beta blockers [MedBeta (STS Adult Cardiac Surgery Database Version 2.73, Sequence number 1710)] marked as "Contraindicated"; or procedures with Status [Status(STS Adult Cardiac Surgery Database Version 2.73, Sequence number 2390)] marked "Emergent" or "Emergent Salvage"
Risk Adjustment	No risk adjustment or risk stratification N/A Provided in response box S.15a	No risk adjustment or risk stratification N/A
Stratification	N/A	
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	Numerator (A) / [Performance Denominator (PD) - Denominator Exclusions (B)] (A) = Identify patients who meet the numerator criteria (CPT® II 4115F)	N/A

	0236: Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery	0127: Preoperative Beta Blockade
	(PD) = Patients who are 18 years and older with CABG CPT® codes during the reporting period removing non-isolated CABG procedures AND procedures with CPT® modifiers 80, 81 & 82 in the health service encounter for the corresponding date of service and surgical event (B) = For those patients who do not meet the numerator criteria, determine whether an appropriate exclusion applies (CPT® II 4115F 1P) and subtract those patients from the denominator Satisfactory reporting criteria are met by valid submission of one CPT® II codes on claims that meet denominator criteria. A rate of quality performance is calculated by dividing the number of records with the CPT® II codes indicating the actions were performed by the total number of patients with isolated CABG procedures minus the patients excluded from the denominator for documented medical reasons. (4115F) / (4115F+4115F 8P)-4115F 1P Available in attached appendix at A.1	
Submission items	5.1 Identified measures: 0127 : Preoperative Beta Blockade 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: The Committee determined it is appropriate to have both measures given that they have different care setting, level of analysis, and data source. The Committee has asked that the developers of the two measures discuss whether there is opportunity for harmonization of the measures.	

Comparison of NQF #0465 and NQF #0116

	0465: Perioperative Anti-platelet Therapy for Patients undergoing Carotid Endarterectomy	0116: Anti-Platelet Medication at Discharge
Steward	Society for Vascular Surgery	Society of Thoracic Surgeons
Description	percentage of patients undergoing carotid endarterectomy (CEA) who are taking an anti-platelet agent (aspirin or clopidogrel or equivilant such as aggrenox/tiglacor etc) within 48 hours prior to surgery and are prescribed this medication at hospital discharge following surgery	percent of patients aged 18 years and older undergoing isolated CABG who were discharged on anti-platelet medication
Type	Process	Process
Data Source	Electronic Clinical Data : Registry VQI or other clinical registries that provides data for preoperative and discharge medications for patients undergoing carotid endarterectomy (CPT 35301, ICD 9 38.12 or ICD 10: 2014 ICD-10-PCS 03CH0ZZ Extirpation of Matter from Right Common Carotid Artery, Open Approach 2014 ICD-10-PCS 03CJ0ZZ Extirpation of Matter from Left Common Carotid Artery, Open Approach 2014 ICD-10-PCS 03CK0ZZ Extirpation of Matter from Right Internal Carotid Artery, Open Approach 2014 ICD-10-PCS 03CL0ZZ Extirpation of Matter from Left Internal Carotid Artery, Open Approach Available in attached appendix at A.1 No data dictionary	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database Version 2.73; STS Adult Cardiac Surgery Database Version 2.8 went live on July 1, 2014. Data Collection instrument Available at measure-specific web page URL identified in S.1
Level	Facility, Clinician : Group/Practice, Clinician : Individual, Integrated Delivery System	Facility, Clinician : Group/Practice
Setting	Ambulatory Care : Clinician Office/Clinic, Hospital/Acute Care Facility	Hospital/Acute Care Facility
Numerator Statement	Patients over age 18 undergoing carotid endarterectomy who received anti-platlet agents such as aspirin or aspirin-like agents, or P2y12 antagonists within 48 hours prior to the initiation of surgery AND are prescribed this medication at hospital discharge following surgery.	Number of patients undergoing isolated CABG who were discharged on anti-platelet medication
Numerator Details	Numerator coding, These are fields that are collected via the data form for the VQI registry, which is approved for PQRS: Gxxx1: Documentation that oral anti-platelet therapy was given within 48 hours prior to surgerical incision Gxxx2: No documentation that oral anti-platelet was given within 48 hours prior to the initiation of surgery	Number of isolated CABG procedures in which discharge aspirin [DCASA (STS Adult Cardiac Surgery Database Version 2.73)] or discharge ADP inhibitors (DCADP) is marked “yes”

	0465: Perioperative Anti-platelet Therapy for Patients undergoing Carotid Endarterectomy	0116: Anti-Platelet Medication at Discharge
	Gxxx3: Oral anti-platelet therapy prescribed at hospital discharge Gxxx4: Oral anti-platelet therapy NOT prescribed at hospital discharge, Gxxx5 does not apply Gxxx5: Patient expired, left against medical advice, discharged to hospice, or transferred to another acute care hospital or federal hospital	
Denominator Statement	Patients over age 18 undergoing carotid endarterectomy.	All patients undergoing isolated CABG
Denominator Details	This is a patient-level measure that is anticipated to be reported a minimum of once per reporting period. To report this measure use the appropriate G-codes for carotid endarterectomy. It is anticipated that physicians providing the procedure of carotid endarterectomy will report this measure. To report, physician must include: BOTH --Gxxx1 OR Gxxx2 AND --Gxxx3 OR Gxxx4 OR Gxxx5 OR --Gxxx6 OR Gxxx7 Numerator coding: Gxxx1: Documentation that oral anti-platelet therapy was given within 48 hours prior to surgerical incision Gxxx2: No documentation that oral anti-platelet was given within 48 hours prior to the initiation of surgery Gxxx3: Oral anti-platelet therapy prescribed at hospital discharge Gxxx4: Oral anti-platelet therapy NOT prescribed at hospital discharge, Gxxx5 does not apply Gxxx5: Patient expired, left against medical advice, discharged to hospice, or transferred to another acute care hospital or federal hospital Exclusion coding: Gxxx6: Medical reasons for not prescribing anti-platelet therapy: patient allergy to both ASA and clopidogrel; patient admitted on heparin; patient admitted on coumadin/warfarin; patient has active bleeding Gxxx7: Patient admitted from emergency department or patient is a direct admit or	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.

	0465: Perioperative Anti-platelet Therapy for Patients undergoing Carotid Endarterectomy	0116: Anti-Platelet Medication at Discharge
	patient has other cardiac procedures done during same operation as the CEA Denominator Coding: CPT code 35301 OR ICD-9 code 38.12 2014 ICD-10-PCS 03CH0ZZ Extirpation of Matter from Right Common Carotid Artery, Open Approach 2014 ICD-10-PCS 03CJ0ZZ Extirpation of Matter from Left Common Carotid Artery, Open Approach 2014 ICD-10-PCS 03CK0ZZ Extirpation of Matter from Right Internal Carotid Artery, Open Approach 2014 ICD-10-PCS 03CL0ZZ Extirpation of Matter from Left Internal Carotid Artery, Open Approach	
Exclusions	Patients with known intolerance to anti-platlet agents such as aspirin or aspirin-like agents, or P2y12 antagonists, or those on heparin or other intravenous anti-coagulants; patients with active bleeding or undergoing urgent or emergent operations or endarterectomy combined with cardiac surgery. Patients with known intolerance to anti-platlet agents such as aspirin or aspirin-like agents, or P2y12 antagonists, or those on or other intravenous anti-coagulants; patients with active bleeding or undergoing urgent or emergent operations or endarterectomy combined with cardiac surgery.	Cases are removed from the denominator if there was an in-hospital mortality or if discharge aspirin was contraindicated.
Exclusion Details	Exclusion coding: Gxxx6: Medical reasons for not prescribing anti-platelet therapy: patient allergy to both ASA and clopidogrel; patient admitted on heparin; patient admitted on coumadin/warfarin; patient has active bleeding Gxxx7: Patient admitted from emergency department or patient is a direct admit or patient has other cardiac procedures done during same operation as the CEA	Mortality Discharge Status (MtDCStat), Mortality Date (MtDate), and Discharge Date (DischDt) indicate an in-hospital mortality; discharge aspirin (DCASA) is marked as "Contraindicated"
Risk Adjustment	No risk adjustment or risk stratification N/A	No risk adjustment or risk stratification N/A
Stratification	N/A	N/A
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	the proportion of patients who do recieve anti-platelets as is recommended No diagram	Please refer to numerator and denominator

	0465: Perioperative Anti-platelet The rapy for Patients undergoing Carotid Endarterectomy	0116: Anti-Platelet Medication at Discharge
	provided	sections for detailed information. No diagram provided
Submission items	5.1 Identified measures: 0116: Anti-Platelet Medication at Discharge 5a.1 Are specs completely harmonized? 5a.2 If not completely harmonized, identify difference, rationale, impact: NQF staff asked the developers to compare "Anti-platelet therapy" as defined by the measures to identify any differences and opportunities for harmonization. There was general consensus among the Committee for having both measures. The STS Adult Database version 2.81 that went live on 7/1/2014 captures the medications included in Measure 0116.	

Comparison of NQF #2038 and NQF #2063

	2038: Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse	2063 : Performing cystoscopy at the time of hysterectomy for pelvic organ prolapse to detect lower urinary tract injury
Steward	American Urogynecologic Society	American Urogynecologic Society
Description	percentage of patients undergoing hysterectomy for the indication of pelvic organ prolapse in which a concomitant vaginal apical suspension (i.e. uterosacral, iliococygeus, sacrospinous or sacral colpopexy, or enterocele repair) is performed.	percentage of patients who undergo cystoscopy to evaluate for lower urinary tract injury at the time of hysterectomy for pelvic organ prolapse.
Type	Process	Process
Data Source	Administrative claims, Electronic Clinical Data : Electronic Health Record No data collection instrument provided No data dictionary	Electronic Clinical Data : Electronic Health, Paper Medical Records No data collection instrument provided
Level	Clinician : Group/Practice, Clinician : Individual	Clinician : Group/Practice, Clinician : Individual
Setting	Hospital/Acute Care Facility	Hospital/Acute Care Facility
Numerator Statement	The number of patients who have a concomitant vaginal apical suspension (i.e.enterocele repair, uterosacral-, iliococygeus-, sacrospinous- or sacral-colpopexy) at the time of hysterectomy for pelvic organ prolapse.	Numerator is the number of patients in whom an intraoperative cystoscopy was performed to evaluate for lower urinary tract injury at the time of hysterectomy for pelvic organ prolapse.
Numerator Details	Patient who undergo a colpopexy at the time of hysterectomy for prolapse will be included in the numerator if the operative note confirms an appropriate procedure. Those procedures meeting the criteria for colpopexy at the time of hysterectomy will include an enterocele repair, intraperitoneal colpopexy such as a high uterosacral plication or McCall's culdeplasty, extraperitoneal colpopexy (sacrospinous or iliococcygeus fixation), or sacral-colpopexy (laparoscopic and abdominal).	The number of patients undergoing hysterectomy for pelvic organ prolapse(identified by CPT codes for hysterectomy and ICD9/10 diagnoses of prolapse as listed in S.9) who have concomitant cystoscopy identified upon review of the operative report in the electronic medical record or paper chart.
Denominator Statement	Hysterectomy performed for the indication of pelvic organ prolapse	The number of patients undergoing hysterectomy for pelvic organ prolapse(identified by CPT codes for hysterectomy and ICD9/10 diagnoses of prolapse as listed in S.9).
Denominator Details	Hysterectomy (identified by CPT codes) performed for the indication of pelvic organ prolapse (identified by supporting ICD9/ICD10 codes) The codes for ICD9 -> ICD-10 are respectively:	Hysterectomy (identified by CPT codes) performed for the indication of pelvic organ prolapse (identified by supporting ICD9/ICD10 codes)

	2038: Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse	2063 : Performing cystoscopy at the time of hysterectomy for pelvic organ prolapse to detect lower urinary tract injury
	618.1 -> N81.10, Cystocele, midline 618.2 -> N81.12, Cystocele, lateral 618.1 ->N81.2, Incomplete uterovaginal prolapse 618.2 -> N81.2, Incomplete uterovaginal prolapse 618.3 -> N81.3, Complete uterovaginal prolapse 618.4 -> N81.4, Uterovaginal prolapse, unspecified 618.6 -> N81.5, Vaginal enterocele 618.7 -> N81.89, Old laceration of muscles of pelvic floor 618.8 (will not be converted to ICD-10) 618.81 -> N81.82, incompetence or weakening of pubocervical tissue 618.82 -> N81.83, incompetence or weakening of rectovaginal tissue 618.83 -> N81.84, pelvic muscle wasting 618.84 -> N81.2 or N81.85 Cervical stump prolapse 618.89 -> N81.89 Other specified genital prolapse 618.9 -> N81.9 Female genital prolapse 622.6 -> N88.4 Hypertrophic elongation of cervix uteri CPT codes for hysterectomy are: 57530 Trachelectomy 58150 Total Abdominal Hysterectomy (Corpus and Cervix), w/ or w/out Removal of Tube(s), w/ or w/out Removal of Ovary(s) 58152 Total Abdominal Hysterectomy (Corpus and Cervix), w/ or w/out Removal of Tube(s), w/ or w/out Removal of Ovary(s), with Colpo-Urethrocystopexy (e.g. Marshall-Marchetti-Krantz, Burch) 58180 Supracervical Abdominal Hysterectomy (Subtotal Hysterectomy), w/ or w/out Removal of Tube(s), w/ or w/out Removal of Ovary(s) 58260 Vaginal Hysterectomy, for Uterus 250 G or Less 58262 Vaginal Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s), and/or Ovary(s) 58263 Vaginal Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s), and/or Ovary(s), with Repair of Enterocele	The prolapse codes for ICD9 -> ICD-10 are, respectively: 618.1 -> N81.10, Cystocele, midline 618.2 -> N81.12, Cystocele, lateral 618.3 -> N81.0, Urethrocele 618.4 -> N81.6, Rectocele 618.5 -> N81.81, Perineocele 618.2 -> N81.2, Incomplete uterovaginal prolapse 618.3 -> N81.3, Complete uterovaginal prolapse 618.4 -> N81.4, Uterovaginal prolapse, unspecified 618.6 -> N81.5, Vaginal enterocele 618.7 -> N81.89, Old laceration of muscles of pelvic floor 618.81 -> N81.82, incompetence or weakening of pubocervical tissue 618.82 -> N81.83, incompetence or weakening of rectovaginal tissue 618.83 -> N81.84, pelvic muscle wasting CPT codes for hysterectomy are: 57530 Trachelectomy 58150 Total Abdominal Hysterectomy (Corpus and Cervix), w/ or w/out Removal of Tube(s), w/ or w/out Removal of Ovary(s) 58152 Total Abdominal Hysterectomy (Corpus and Cervix), w/ or w/out Removal of Tube(s), w/ or w/out Removal of Ovary(s), with Colpo-Urethrocystopexy (e.g. Marshall-Marchetti-Krantz, Burch) 58180 Supracervical Abdominal Hysterectomy

	2038: Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse	2063 : Performing cystoscopy at the time of hysterectomy for pelvic organ prolapse to detect lower urinary tract injury
	58267 Vaginal Hysterectomy, for Uterus 250 G or Less, with Colpo-Urethrocystopexy (Marshall-Marchetti-Krantz Type, Pereyra Type), w/ or w/out Endoscopic Control 58270 Vaginal Hysterectomy, for Uterus 250 G or Less, with Repair of Enterocele 58275 Vaginal Hysterectomy, with Total or Partial Vaginectomy 58280 Vaginal Hysterectomy, with Total or Partial Vaginectomy, with Repair of Enterocele 58290 Vaginal Hysterectomy, for Uterus Greater than 250 G 58291 Vaginal Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s) 58292 Vaginal Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s), with Repair of Enterocele 58293 Vaginal Hysterectomy, for Uterus Greater than 250 G, with Colpo-Urethrocystopexy (Marshall-Marchetti-Krantz Type, Pereyra Type) 58294 Vaginal Hysterectomy, for Uterus Greater than 250 G, with Repair of Enterocele 58541 Laparoscopy, Surgical, Supracervical Hysterectomy, for Uterus 250 G or Less 58542 Laparoscopy, Surgical, Supracervical Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s) and/or Ovary(s) 58543 Laparoscopy, Surgical, Supracervical Hysterectomy, for Uterus Greater than 250 G 58544 Laparoscopy, Surgical, Supracervical Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s) 58550 Laparoscopy, Surgical, with Vaginal Hysterectomy, for Uterus 250 G or Less 58552 Laparoscopy, Surgical, with Vaginal Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s) and/or Ovary(s) 58553 Laparoscopy, Surgical, with Vaginal Hysterectomy, for Uterus Greater than 250 G 58554 Laparoscopy, Surgical, with Vaginal Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s) 58570 Laparoscopy, Surgical, with Total Hysterectomy, for Uterus 250 G or Less	(Subtotal Hysterectomy), w/ or w/out Removal of Tube(s), w/ or w/out Removal of Ovary(s) 58260 Vaginal Hysterectomy, for Uterus 250 G or Less 58262 Vaginal Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s), and/or Ovary(s) 58263 Vaginal Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s), and/or Ovary(s), with Repair of Enterocele 58267 Vaginal Hysterectomy, for Uterus 250 G or Less, with Colpo-Urethrocystopexy (Marshall-Marchetti-Krantz Type, Pereyra Type), w/ or w/out Endoscopic Control 58270 Vaginal Hysterectomy, for Uterus 250 G or Less, with Repair of Enterocele 58275 Vaginal Hysterectomy, with Total or Partial Vaginectomy 58280 Vaginal Hysterectomy, with Total or Partial Vaginectomy, with Repair of Enterocele 58290 Vaginal Hysterectomy, for Uterus Greater than 250 G 58291 Vaginal Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s) 58292 Vaginal Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s), with Repair of Enterocele 58293 Vaginal Hysterectomy, for Uterus Greater than 250 G, with Colpo-Urethrocystopexy (Marshall-Marchetti-Krantz Type, Pereyra Type) 58294 Vaginal Hysterectomy, for Uterus Greater than 250 G, with Repair of Enterocele

	2038: Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse	2063 : Performing cystoscopy at the time of hysterectomy for pelvic organ prolapse to detect lower urinary tract injury
	58571 Laparoscopy, Surgical, with Total Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s) and/or Ovary(s) 58572 Laparoscopy, Surgical, with Total Hysterectomy, for Uterus Greater than 250 G 58573 Laparoscopy, Surgical, with Total Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s)	58541 Laparoscopy, Surgical, Supracervical Hysterectomy, for Uterus 250 G or Less 58542 Laparoscopy, Surgical, Supracervical Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s) and/or Ovary(s) 58543 Laparoscopy, Surgical, Supracervical Hysterectomy, for Uterus Greater than 250 G 58544 Laparoscopy, Surgical, Supracervical Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s) 58550 Laparoscopy, Surgical, with Vaginal Hysterectomy, for Uterus 250 G or Less 58552 Laparoscopy, Surgical, with Vaginal Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s) and/or Ovary(s) 58553 Laparoscopy, Surgical, with Vaginal Hysterectomy, for Uterus Greater than 250 G 58554 Laparoscopy, Surgical, with Vaginal Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s) 58570 Laparoscopy, Surgical, with Total Hysterectomy, for Uterus 250 G or Less 58571 Laparoscopy, Surgical, with Total Hysterectomy, for Uterus 250 G or Less, with Removal of Tube(s) and/or Ovary(s) 58572 Laparoscopy, Surgical, with Total Hysterectomy, for Uterus Greater than 250 G 58573 Laparoscopy, Surgical, with Total Hysterectomy, for Uterus Greater than 250 G, with Removal of Tube(s) and/or Ovary(s)
Exclusions	• Patients with a gynecologic or other pelvic malignancy noted at the time of hysterectomy	There are no exclusions from the target population.

	2038: Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse	2063 : Performing cystoscopy at the time of hysterectomy for pelvic organ prolapse to detect lower urinary tract injury
	• Patients undergoing a concurrent obliterative procedure (colpocleisis)	
Exclusion Details	ICD9 codes: •179 Malignant neoplasm of uterus, part unspecified (ICD-10 C55 same title) •180 Malignant neoplasm of cervix uteri (ICD-10 C53 same title) •182 Malignant neoplasm of body of uterus (ICD-10 C54 same title) •183 Malignant neoplasm of ovary and other uterine adnexa (ICD-10 C56 same title) •184 Malignant neoplasm of other and unspecified female genital organs (ICD-10 C57 same title) •188 Malignant neoplasm of bladder (ICD-10 C67 same title) CPT codes for colpocleisis •57120 colpocliesis(le Fort type)	There are no exclusions from the target population.
Risk Adjustment	Statistical risk model We plan to risk adjust the measure for prolapse size using a logistic regression model.	No risk adjustment or risk stratification We are not planning to risk adjust this measure.
Stratification	No, we do not plan to stratify the measure results.	We do not plan to stratify the results.
Type Score	Rate/proportion better quality = higher score	Rate/proportion better quality = higher score
Algorithm	1. Target population: Patients of a specific surgeon or group undergoing hysterectomy or trachelecomy for diagnosis of prolaspe as defined by CPT/ICD-9/10 codes are identified 2. Exclusions: Patients with diagnoses of cancer (see ICD-9/10 codes above) and with concomitant CPT code for colpocliesis are excluded 3. Denominator: Total number of the target population minus total number of exclusions 4. Numerator: Total number of the patients in the denominator minus the patients from the denominator who have concomiant CPT codes identifying colpopexy or enterocele repair bundled with hysterectomy 5. Numerator is divided by Denominator, and muliplied by 100, to calculate a percentage (rate/proportion) No diagram provided	1. Denominator: Patients of a specific surgeon or group undergoing hysterectomy or trachelectomy for diagnosis of prolapse as defined by CPT and ICD-9/10 codes are identified from administrative data. 2. Numerator: Electronic medical record or paper chart operative notes are reviewed to identify the performance of a cystoscopy at the time of the procedure identified in the denominator. 3. The numerator is divided by the denominator and multipled by 100 to calcualte a percentage (rate/proportion) No diagram provided
Submission items	5.1 Identified measures:	

	2038: Performing vaginal apical suspension at the time of hysterectomy to address pelvic organ prolapse	2063 : Performing cystoscopy at the time of hysterectomy for pelvic organ prolapse to detect lower urinary tract injury
	2063: Performing cystoscopy at the time of hysterectomy for pelvic organ prolapse to detect lower urinary tract injury 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: The Committee questioned whether this measure and the cystoscopy measure (#2063) should be combined. The developers responded that exclusion criteria for the measures are different and that the goals of each measure are different – #2038 is close to an outcome measure and #2063 is primarily a safety procedure and each should have a period of separate implementation and evaluation. The Committee recommended a future evaluation to address whether or not they are connected, and if and how they should be harmonized or combined.	

Comparison of NQF #2687 and NQF #2539

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
Steward	The Centers for Medicare & Medicaid Services (CMS)	Centers for Medicare & Medicaid Services
Description	Facility-level, post-surgical risk-standardized hospital visit ratio (RSHVR) of the predicted to expected number of all-cause, unplanned hospital visits within 7 days of a same-day surgery at a hospital outpatient department (HOPD) among Medicare fee-for-service (FFS) patients aged 65 years and older.	Rate of risk-standardized, all-cause, unplanned hospital visits within 7 days of an outpatient colonoscopy among Medicare fee-for-service (FFS) patients aged 65 years and older. Numerator time window: 7 days after colonoscopy for all-cause, unplanned hospital visits. Denominator time window: Any colonoscopy performed during the measurement period (e.g., 2 years). Risk adjustment look-back period: 1 year prior to date of procedure.
Type	Outcome	Outcome
Data Source	Administrative claims Medicare administrative claims and enrollment data No data collection instrument provided Attachment Surgery_Measure_Data_Dictionary_01-14-15_v1.0_FINAL.xlsx	Administrative
Level	Facility	Facility
Setting	Other Hospital Outpatient Department	Ambulatory Care : Ambulatory Surgery Center (ASC), Ambulatory Care : Clinician Office/Clinic, Other: Hospital Outpatient, Department
Numerator Statement	The outcome is all-cause, unplanned hospital visits, defined as 1) an inpatient admission directly after the surgery or 2) an unplanned hospital visit (emergency department [ED] visit, observation stay, or unplanned inpatient admission) occurring after discharge and within 7 days of the surgical procedure.	The outcome for this measure is all-cause, unplanned hospital visits within 7 days of an outpatient colonoscopy. We define a hospital visit as any emergency department (ED) visit, observation stay, or unplanned inpatient admission.
Numerator Details	Outcome Definition The outcome is all-cause, unplanned hospital visits, defined as 1) an inpatient admission directly after the surgery or 2) an unplanned hospital visit (ED visit, observation stay, or unplanned inpatient admission) occurring after discharge and within 7 days of the surgical procedure. If more than one unplanned hospital visit occurs, only the first hospital visit	Outcome Definition The outcome for this measure is all-cause, unplanned hospital visits within 7 days of an outpatient colonoscopy. Hospital visits include ED visits, observation stays, and unplanned inpatient admissions. If more than one unplanned hospital visit occurs, only the first hospital visit

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
	within the outcome timeframe is counted in the outcome. Identification of Planned Admissions The measure outcome includes any inpatient admission within the first 7 days after the surgery, unless that inpatient admission is deemed a "planned" admission. The measure considers inpatient admissions occurring on the day of the surgery (Day 0) and Day 1 post-surgery "unplanned" as the vast majority of these admissions are inpatient admissions directly following surgery and therefore likely represent complications of care, inpatient admissions primarily for non-clinical reasons (such as lack of transport home), and inpatient admissions for logistical issues (such as delayed start of surgery). For inpatient admissions occurring on Days 2-7 after surgery, the measure only counts unplanned admissions in the outcome. Planned admissions are those planned by providers for anticipated medical treatment or procedures that must be provided in the inpatient setting. The Centers for Medicare & Medicaid Services (CMS) seeks to count only unplanned admissions in the measure outcome, because variation in planned admissions does not reflect quality differences. The measure identifies planned admissions using an algorithm that considers the inpatient admission's procedures and diagnoses and classifies the inpatient admission as planned or unplanned. We based the planned admission algorithm on the CMS Planned Readmission Algorithm Version 3.0, which CMS created for its hospital-wide readmission measure. In brief, the algorithm identifies inpatient admissions that are typically planned and may occur after the patient's index event. The algorithm always considers a few specific, limited types of care planned (e.g., major organ transplant, rehabilitation, or maintenance chemotherapy). Otherwise, the algorithm defines a planned admission as a non-acute inpatient admission for a scheduled procedure (e.g., total hip replacement or cholecystectomy), and the algorithm never considers inpatient admissions for acute illness or for complications of care planned. For example, the algorithm considers hip replacement unplanned if hip fracture (an acute condition) is the discharge diagnosis, but planned if osteoarthritis (a non-acute condition) is the discharge diagnosis. The algorithm considers inpatient admissions that include potentially planned procedures with acute diagnoses or that might represent complications of	within the outcome timeframe is counted in the outcome. Identification of Planned Admissions The measure outcome includes any inpatient admission within the first 7 days after the colonoscopy, unless that admission is deemed a "planned" admission as defined by the measure's planned admission algorithm. The Centers for Medicare & Medicaid Services (CMS) seeks to count only unplanned admissions in the measure outcome, because variation in "planned" admissions does not reflect quality differences. We based the planned admission algorithm on the CMS Planned Readmission Algorithm Version 3.0, which CMS created for its hospital-wide readmission measure. In brief, the algorithm identifies admissions that are typically planned and may occur after the patient's index event. The algorithm always considers a few specific, limited types of care planned (e.g., major organ transplant, rehabilitation, or maintenance chemotherapy). Otherwise, the algorithm defines a planned admission as a non-acute admission for a scheduled procedure (e.g., total hip replacement or cholecystectomy), and the algorithm never considers admissions for acute illness or for complications of care planned. For example, the algorithm considers hip replacement unplanned if hip fracture (an acute condition) is the discharge diagnosis, but planned if osteoarthritis (a non-acute condition) is the discharge diagnosis. The algorithm considers admissions that include potentially planned procedures with acute diagnoses or that might represent complications of a colonoscopy unplanned and thus counts these admissions in the measure outcome. Appendix C of the attached technical report contains the detailed algorithm used to identify planned admissions.

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
	a surgery unplanned and thus counts these inpatient admissions in the measure outcome. Appendix C of the attached technical report contains the detailed algorithm used to identify planned admissions. Applying the algorithm to 2010 Medicare 20% FFS data (2010 Development Full Sample, see Measure Testing Form Section 1.2 and 1.7 for full description of the dataset), planned admissions constituted 2% of all hospital visits and 3% of all inpatient admissions within 7 days of outpatient surgery. Please see Data Dictionary, sheet "S.6 ICD9-ICD10 PlannedAlgorithm," for the ICD-9 to ICD-10 crosswalk for the Planned Readmission Algorithm. Definition of ED and Observation Stay The measure defines ED visits and observation stays using one of the specified billing codes or revenue center codes identified in Medicare Part B Outpatient hospital claims. The codes that define ED visits and observation stays are in the attached Data Dictionary, sheet "S.6 Numerator-ED Obs Def."	Applying the algorithm to 2010 Medicare data (Medicare 20% FFS Development Full Sample, see Measure Testing Form Section 1.2 and 1.7 for full description of the dataset), planned admissions constituted 19.2% of all hospital visits and 33.6% of all admissions within 7 days of colonoscopy. The most common planned admission was for colorectal resection. Definition of ED and Observation Stay We defined ED visits and observation stays using one of the specified billing codes or revenue center codes identified in Medicare Part B Outpatient hospital claims. The codes that define ED visits and observation stays are in the attached Data Dictionary, sheet "S.6 Numerator-ED Obs Def."
Denominator Statement	Outpatient same-day surgeries performed at HOPDs for Medicare FFS patients aged 65 years and older with the exception of eye surgeries and same day surgeries performed concurrently with high-risk procedures.	Colonoscopies performed at hospital outpatient departments (HOPDs) and ambulatory surgical centers (ASCs) for Medicare FFS patients aged 65 years and older.
Denominator Details	This outcome measure does not have a traditional numerator and denominator like a core process measure (e.g., percentage of adult patients with diabetes aged 18-75 years receiving one or more hemoglobin A1c tests per year). We therefore use this field to define the measure cohort. Target Population The target population is Medicare FFS patients aged 65 years and older undergoing same-day surgery (those that do not typically require an overnight stay) at HOPDs. We limit the measure cohort to older Medicare FFS patients because national data linking patient risk factors, procedures, and outcomes across care settings is only available for this group. We further limit the measure to patients who have been enrolled in Part A and Part B Medicare for the 12 months prior to the date of surgery to ensure we have adequate data for identifying comorbidities for risk adjustment. The measure includes surgeries if a claim is present in the Medicare	Target Population The target population is colonoscopies performed at HOPDs and ASCs. However, the measure evaluates relative performance of facilities, and to ensure that the measure assesses colonoscopy quality at these facilities relative to the quality of all colonoscopy providers, we include colonoscopies performed at HOPDs, ASCs, and physician offices in the measure score calculation. The measure calculation package calculates a facility-level score for all unique facilities. Only the HOPDs and ASCs scores, however, are intended for use in public reporting, not the scores estimated for individual physician offices. The denominator could be narrowed to the facilities of interest. For example, the measure scores could be

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
	outpatient data indicating an HOPD same-day surgery. Specifically, we identify physician claims as Outpatient Hospital Department/or Physician Office by the Line Place of Service Code in the Part B Carrier Standard Analytical File (SAF). We then link these claims to Outpatient SAF claims to identify the HOPD where the surgery took place. If there is no match in the Outpatient SAF claims, we link the claim to the inpatient facility claims (contained in the Medicare Provider Analysis and Review [MedPAR] file) if there is a claim that falls within 3 days of the initial physician claim. Claims that are linked to inpatient files are deemed to fall under the 3-day payment window (see description below). Surgeries for which an outpatient claim is not filed are not included in the measure cohort. "Same-day surgeries" are substantive surgeries and procedures listed on Medicare's list of covered ambulatory surgery center (ASC) procedures for 2013 (with the exception of eye surgeries). Medicare developed this list for ASCs to identify surgeries that can be safely-performed as same-day surgeries and do not typically require an overnight stay. This list of surgeries is publicly available at: http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ASCPayment/ASC-Regulations-and-Notices-Items/CMS-1589-FC.html (refer to Addendum AA on the website). Surgeries on the ASC list of covered procedures do not involve or require: major or prolonged invasion of body cavities, extensive blood loss, major blood vessels, or care that is either emergent or life-threatening. Although Medicare developed this list of surgeries for ASCs, we use it for this HOPD measure for two reasons. First, it aligns with our target cohort of surgeries that have a low to moderate risk profile and are safe to be performed as same-day surgeries. By only including surgeries on this list in the measure, the measure effectively does not include surgeries performed at HOPDs that typically require an overnight stay which are more complex, higher risk surgeries. Second, we use this list of surgeries for practical considerations. The ASC list is publicly available, is annually reviewed and updated by Medicare, and includes a transparent public comment submission and review process for addition and/or removal of procedures codes. Using an existing, defined list of same-day surgeries, rather than defining surgeries de novo, is useful for long-term measure maintenance. Procedures listed in Medicare's list of covered ASC procedures are defined	calculated using only HOPDs or only ASC colonoscopies. However, this would change the comparison group. HOPDs would be compared relative to the performance of one another, and ASCs would be compared relative to the performance of one another. If this approach is used, the results cannot be used to compare quality across HOPDs and ASCs. The targeted patient population is patients aged 65 years and older who are enrolled in Medicare FFS and have been enrolled in Part A and Part B Medicare for the 12 months prior to the date of procedure. We limited the measure cohort to older Medicare patients since national data linking risk factors, procedures, and outcomes across care settings is only available for this group. The population includes patients undergoing screening for colorectal cancer (CRC), patients undergoing diagnostic evaluation for symptoms and signs of disease, and patients undergoing biopsies or removal of pre-cancerous lesions or polyps who are generally well. We defined this cohort as having one or more of the specified Current Procedural Terminology (CPT)/Healthcare Common Procedure Coding System (HCPCS) procedure codes identified in Medicare Carrier (Part B Physician) Standard Analytical File (SAF). The CPT and HCPCS procedure codes that define the cohort are in the attached Data Dictionary, sheet "S.9 Denominator Details-Cohort." We considered all colonoscopy codes during development of the measure cohort. We did not include colonoscopy CPT procedure codes in the measure that reflected fundamentally higher-risk or different procedures. Those

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
	using Healthcare Common Procedure Coding System (HCPCS) and Common Procedural Terminology (CPT) codes. Ambulatory surgeries include a heterogeneous mix of non-surgical procedures, minor surgeries, and more substantive surgeries. We want to include substantive surgeries but not very low risk (minor) surgeries or non-surgical procedures which typically have a high volume and a very low outcome rate. We identify substantive surgeries using the global surgery indicator (GSI) value 090 which identifies surgeries of greater complexity and follow-up care based on Work Relative Value Units (RVUs). The measure does not include minor non-surgical procedures (GSI code 000) or minor surgeries (GSI code 010), with one exception: the measure includes cystoscopy with intervention because this is a common procedure, often performed for therapeutic intervention by surgical teams, and has an outcome rate similar to other surgeries in the measure cohort. Please see Data Dictionary, sheet "S.9 Denominator Details-Cystos," for list of cystoscopy codes included in the cohort. The measure cohort does not include eye surgeries. Although eye surgery is considered a substantive (GSI 090) surgery, its risk profile is more representative of "minor" surgery, in that it is characterized by high volume and a low outcome ratio. Please see Data Dictionary, sheet "S.9 Denominator Details-Eye," for list of eye surgery codes not included in the cohort. Please see Data Dictionary, sheet "S.9 Denominator Details-Cohort," for surgery codes that define the measure cohort. Finally, when multiple surgeries occur concurrently, the measure only includes surgeries that are performed concurrently with another low to moderate risk procedure listed on Medicare's list of covered ASC procedures. The measure does not include same-day surgeries occurring concurrently with a higher risk procedure such as an inpatient-only surgery. Capture of Surgeries Affected by the Medicare 3-Day Payment Window Policy: The Medicare 3-day payment window policy affects some surgeries performed at HOPDs. The policy deems outpatient services (including	procedures billed with a qualifying colonoscopy procedure code and a high-risk colonoscopy procedure code (see attached Data Dictionary, sheet "S.9 Denominator Details-Hgh Rsk") were not included in the measure. Colonoscopy is not possible among patients who have had a prior total colectomy. Any claim for a colonoscopy in a patient with a prior total colectomy is therefore likely to be a coding error. We perform an error check to ensure the measure does not include these patients with a total colectomy recorded in their prior medical history. The CPT and HCPCS procedure codes and International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes that define the total colectomy data reliability check are in the attached Data Dictionary, sheet "S.9 Denominator Details-Colect." Capture of Colonoscopies Affected by the Medicare 3-Day Payment Window Policy: Colonoscopies performed at HOPDs can be affected by the Medicare 3-day payment window policy. The policy states that outpatient services (including all diagnostic services such as colonoscopy) provided by a hospital or any Part B entity wholly owned or wholly operated by a hospital (such as a HOPD) in the 3 calendar days preceding the date of a beneficiary's inpatient admission are deemed to be related to the admission [1]. For outpatient colonoscopies affected, the facility claim (for the technical portion of the colonoscopy) is bundled with the inpatient claim, although the Medicare Part B physician claim for professional services rendered is still submitted. This policy has implications for the measure because it may lead to: (1) failure to completely capture outpatient colonoscopies performed at HOPDs; (2) underreporting of outcomes for colonoscopies performed in the HOPD setting; and (3) an

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
	surgeries) provided by a hospital or any Part B entity wholly owned or operated by a hospital (such as an HOPD) in the three calendar days preceding the date of a beneficiary's inpatient admission as related to the admission [1]. For outpatient surgeries affected, the HOPD facility claim (for the technical portion of the surgery) is bundled with the inpatient claim and is not recorded in the Medicare Outpatient SAF; the Medicare Physician claim for professional services rendered is still submitted separately. To ensure the capture of HOPD surgeries affected by the policy, the measure identifies in the Medicare Carrier SAF physician claims for surgery in the HOPD setting with an inpatient admission within three days and lacking a corresponding HOPD facility claim. The measure then attributes the surgery identified as affected by this policy to the appropriate HOPD using the facility provider ID from the inpatient claim. Citations 1. Centers for Medicare & Medicaid Services (CMS). Three Day Payment Window. 2013; http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Three_Day_Payment_Window.html.	inability to compare the measure score across both types of facilities (HOPDs and ASCs). To ensure the capture of HOPD colonoscopies, we identify physician claims for colonoscopy in the HOPD setting from the Medicare Part B SAF who had an inpatient admission within =3 days and lacking a corresponding HOPD facility claim. We then attribute the colonoscopies identified as affected by this policy to the appropriate HOPD facility using the facility provider ID from the inpatient claim. Citations 1. Centers for Medicare & Medicaid Services (CMS). Three Day Payment Window. 2013; http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Three_Day_Payment_Window.html.
Exclusions	The measure excludes surgeries for patients without continuous enrollment in Medicare FFS Parts A and B in the 1 month after the surgery. The measure excludes these patients to ensure all patients have full data available for outcome assessment. The exclusion prevents unfair distortion of performance results. The measure excludes surgeries for patients without continuous enrollment in Medicare FFS Parts A and B in the 1 month after the surgery.	We established the following exclusion criteria after reviewing the literature, examining existing measures, and discussing alternatives with the working group and technical expert panel (TEP) members. The goal was to be as inclusive as possible; we excluded only those high-risk procedures and patient groups for which risk adjustment would not be adequate or for which hospital visits were not typically a quality signal. The exclusions, based on clinical rationales, prevent unfair distortion of performance results. 1) Colonoscopies for patients who lack continuous enrollment in Medicare FFS Parts A and B in the 1 month after the procedure. Rationale: We exclude these patients to ensure full data availability for outcome assessment.

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
		2) Colonoscopies that occur concurrently with high-risk upper gastrointestinal (GI) endoscopy procedures. Rationale: Patients undergoing concurrent high-risk upper GI endoscopy procedures, such as upper GI endoscopy procedures for the control of bleeding or treatment of esophageal varices, are often unwell and have a higher risk profile than typical colonoscopy patients. Therefore these patients have a disproportionally higher risk for the outcome. 3) Colonoscopies for patients with a history of inflammatory bowel disease (IBD). Rationale: We exclude these patients because: -IBD is a chronic condition; patients with IBD undergo colonoscopy for both surveillance due to increased cancer risk and for evaluation of acute symptoms. IBD is likely to be coded as the primary diagnosis prompting the procedure irrespective of whether the patients are undergoing a screening procedure or a diagnostic procedure in the setting of an acute exacerbation of IBD. Therefore, we may not be able to adequately risk adjust for these patients as we cannot identify relatively well versus acutely unwell patients among visits coded as IBD. -Our aim is to capture hospital visits which reflect the quality of care. Admissions for acutely ill IBD patients who are evaluated with an outpatient colonoscopy and are subsequently admitted for medical treatment of an IBD flare do not reflect the quality of the colonoscopy. In our 2010 Medicare 20% FFS Full Development Sample (see Measure Testing Form Section 1.2 and 1.7 for full description of the dataset), more than one third of IBD patients admitted to the hospital with colonoscopy had a discharge diagnosis of IBD, indicating their admission was

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
		for medical treatment of their IBD. We therefore excluded this group so that providers who treat a disproportionate number of IBD patients will not be disadvantaged in the measure. 4) Colonoscopies for patients with a history of diverticulitis. Rationale: We exclude these patients because: -It is unclear what the health status is of patients coded with a history of diverticulitis, making it difficult to fully risk adjust for patients' health. Colonoscopies performed on patients with a history of diverticulitis are likely to be coded as diverticulitis as the primary diagnosis irrespective of whether the patients are undergoing a screening procedure or a diagnostic procedure (i.e., are acutely unwell with active disease). Furthermore, the codes for diverticulitis and diverticulosis may not be consistently used; patients with diverticulosis may be erroneously coded as diverticulitis. Therefore, we may not be able to adequately risk adjust as we cannot identify relatively well versus acutely unwell patients among visits coded as diverticulitis. -Admissions for acutely ill patients with a history of diverticulitis who are evaluated with an outpatient colonoscopy and are subsequently admitted for medical treatment of do not reflect the quality of the colonoscopy. In our 2010 Medicare 20% FFS Full Development Sample (see Measure Testing Form Section 1.2 and 1.7 for full description of the dataset) more than one quarter of patients with a history of diverticulitis admitted to the hospital post colonoscopy had a discharge diagnosis of diverticulitis, indicating they were admitted for medical treatment of the condition. These admissions are likely unrelated to the quality of the colonoscopy. We therefore excluded this group so that providers who treat a

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
		disproportionate number of diverticulitis patients will not be disadvantaged in the measure.
Exclusion Details	Lack of continuous enrollment in Medicare FFS for 1 month after the outpatient same-day surgery is determined by patient enrollment status in FFS Parts A and B using the Medicare enrollment file. The enrollment indicators must be appropriately marked for the month(s) which fall within 30 days of surgery date.	1) Colonoscopies for patients who lack continuous enrollment in Medicare FFS Parts A and B in the 1 month after the procedure. Lack of continuous enrollment in Medicare FFS for 1 month after the procedure is determined by patient enrollment status in FFS Parts A and B using the Medicare Master Beneficiary Summary File (MBSF). The enrollment indicators must be appropriately marked for the month(s) which falls within 30 days of procedure date. 2) Colonoscopies that occur concurrently with high-risk upper GI endoscopy procedures. The list of the CPT codes for the upper GI endoscopy procedures identified as "high-risk" are in attached Data Dictionary, sheet "S.11 Denom. Exclusion Upper En." 3) Colonoscopies for patients with a history of IBD. The ICD-9-CM codes that define IBD are in the attached Data Dictionary, sheet "S.11 Denom. Exclusion IBD." 4) Colonoscopies for patients with a history of diverticulitis. The ICD-9-CM codes that define diverticulitis are in the attached Data Dictionary, sheet "S.11 Denom. Exclusion Divertic."
Risk Adjustment	Statistical risk model Our approach to risk adjustment is tailored to, and appropriate for, a publicly reported outcome measure as articulated in published scientific guidelines [1,2]. The measure uses a two-level hierarchical logistic regression model to estimate RSHVRs. This approach accounts for the clustering of patients	Statistical risk model Our approach to risk adjustment is tailored to, and appropriate for, a publicly reported outcome measure as articulated in published scientific guidelines [1,2]. We use a two-level hierarchical logistic regression model

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
	within HOPDs and variation in sample size. The risk-adjustment model has 25 patient-level variables (age and 24 comorbidity variables) and 2 surgical complexity variables. With the exception of morbid obesity, which we define using an individual ICD-9 diagnosis code, we define comorbidity variables using CMS Condition Categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9 diagnosis codes. A map showing the assignment of ICD-9 codes to CCs can be found in the attached Data Dictionary, sheet "S.14 CC-ICD-9 Map." Data Dictionary, sheet "S.14 ICD9-ICD10 Morbid Obesity" contains the crosswalk of ICD-9 to ICD-10 codes for morbid obesity. Certain CCs are considered possible complications of care and are not risk-adjusted for if they only occur at the surgery. See attached Data Dictionary, sheet "S.14 Stat Risk Model Method" for CCs that are considered possible complications of care and are not risk-adjusted for if they only occur at the surgery. The measure risk adjusts for surgical procedural complexity using two variables. First, it adjusts for surgical procedural complexity using the Work RVU of the procedure. Work RVUs are assigned to each CPT procedure code and approximate surgical procedural complexity by incorporating elements of physician time and effort. For patients with multiple concurrent CPT procedure codes, we risk adjust for the CPT code with the highest Work RVU value. Second, it classifies each surgery into an anatomical body system group using the Agency for Healthcare Research and Quality (AHRQ) Clinical Classification System (CCS) [4]. The measure uses the body system variable, in addition to the Work RVU of the surgery, to account for organ-specific difference in risk and complications which are not adequately captured by the Work RVU alone. This approach to risk adjustment for surgical procedural complexity is similar to that described in the literature and used for risk adjustment in the American College of Surgeons' National Surgical Quality Improvement Program (NSQIP) [5]. The coding list for the body systems is available at: http://www.hcup-us.ahrq.gov/toolssoftware/ccs/AppendixDMultiPR.txt Model Variables Age Cancer (CC 7-12)	to estimate risk-standardized hospital visit rates. This approach accounts for the clustering of patients within facilities and variation in sample size. The risk-standardization model has 15 patient-level variables (age, concomitant upper GI endoscopy, polypectomy and 12 comorbidity variables). We define comorbidity variables using condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9 diagnosis codes. A map showing the assignment of ICD-9 codes to CCs can be found in the attached Data Dictionary, sheet "S.14 CC-ICD-9 Map." Certain CCs are considered possible complications of care and are not risk-adjusted for if they only occur at the procedure. This is because only comorbidities that convey information about the patient at the time of the procedure or in the 12 months prior, and not complications that arose during the colonoscopy procedure, are included in the risk adjustment. See attached Data Dictionary, sheet "S.14 Stat Risk Model Method" for CCs that are considered possible complications of care and are not risk-adjusted for if they only occur at the procedure. Model Variables The patient-level risk-adjustment variables are: Age Categorized (65-69; 70-74; 75-79; 80-84; 85+) Concomitant Endoscopy Polypectomy during Procedure Chronic Heart Failure (CC 80) Ischemic Heart Disease (CC 81-84) Stroke/Transient Ischemic Attack (TIA) (CC 95-97) Chronic Lung Disease (CC 108-110) Metastatic Cancer (CC 7-9)

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
	Diabetes and DM Complications (CC 15-19, 119, 120) Disorders of Fluid/Electrolyte/Acid-Base (CC 23) Intestinal Obstruction/Perforation (CC 31) Inflammatory Bowel Disease (CC 33) Bone/Joint/Muscle Infections/Necrosis (CC 37) Hematological Disorders Including Coagulation Defects and Iron Deficiency (CC 44, 46, 47) Dementia or Senility (CC 49-50) Psychiatric Disorders (CC 54-60) Hemiplegia, Paraplegia, Paralysis, Functional Disability (CC 67-69, 100-103, 177-178) Other Significant CNS Disease (CC 72-75) Cardiorespiratory Arrest, Failure, and Respiratory Dependence (CC 77-79) Chronic Heart Failure (CC 80) Ischemic Heart Disease (CC 81-84) Hypertension and Hypertensive Disease (CC 89-91) Arrhythmias (CC 92-93) Vascular Disease (CC 104-106) Chronic Lung Disease (CC 108-110) UTI and Other Urinary Tract Disorders (CC 135-136) Pelvic Inflammatory Disease and Other Specified Female Genital Disorders (CC 138) Chronic Ulcers (CC 148-149) Cellulitis, Local Skin Infection (CC 152) Prior Significant Fracture (CC 157-159) Morbid Obesity (ICD-9 278.01) Work RVUs Body System Operated On Citations 1. Krumholz HM, Brindis RG, Brush JE, et al. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart	Liver Disease (CC 25-30) Iron Deficiency Anemia (CC 47) Disorders of Fluid, Electrolyte, Acid-Base (CC 23) Pneumonia (CC 111-113) Psychiatric Disorders (CC 54-56, 58-60) Drug and Alcohol Abuse/Dependence (CC 51-53) Arrhythmia (CC 92-93) Age Categorized x Arrhythmia Interaction Note: The relationship between risk of a hospital visit within 7 days and age was modified by the presence or absence of a cardiac arrhythmia (p-value for interaction <0.001). Therefore, we included an interaction term (age categorized x arrhythmia) in the final model. Citations 1. Krumholz HM, Brindis RG, Brush JE, et al. Standards for Statistical Models Used for Public Reporting of Health Outcomes: An American Heart Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation. 2006; 113 (3): 456-462. 2. Normand S-LT, Shahian DM. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci. 2007; 22 (2): 206-226.

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
	Association Scientific Statement From the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council Endorsed by the American College of Cardiology Foundation. Circulation. 2006; 113 (3): 456-462. 2. Normand S-LT, Shahian DM. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci. 2007; 22 (2): 206-226. 3. National Quality Forum. Measure Evaluation Criteria and Guidance on Evaluation. 2013; http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=73365, July 2013. 4. HCUP Clinical Classifications Software for Services and Procedures. Healthcare Cost and Utilization Project (HCUP). 2008. Agency for Healthcare Research and Quality, Rockville, MD http://www.hcup-us.ahrq.gov/toolssoftware/ccs_svcsproc/ccssvcproc.jsp, 2014. 5. Raval MV, Cohen ME, Ingraham AM, et al. Improving American College of Surgeons National Surgical Quality Improvement Program risk adjustment: incorporation of a novel procedure risk score. Journal of the American College of Surgeons. Dec 2010;211(6):715-723 Available in attached Excel or csv file at S.2b	
Stratification	Not applicable. This measure is not stratified.	Not applicable. This measure is not stratified.
Type Score	Ratio better quality = lower score	Ratio better quality = lower score
Algorithm	Please see Appendix D of attached measure technical report for details. Available in attached appendix at A.1	Please see Appendix D of attached measure technical report for details.

	2687: Hospital Visits after Hospital Outpatient Surgery	2539: Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy
Submission items	5.1 Identified measures: 2539 : Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy 5a.1 Are specs completely harmonized? No 5a.2 If not completely harmonized, identify difference, rationale, impact: The Committee recommended that the need for two similar measures, harmonization and unintended consequences should be assessed during the next maintenance cycle once the measures have been in use for some time.	

Comparison of NQF #0732 and NQF #0340

	0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories	0340: RACHS-1 Pediatric Heart Surgery Volume (PDI 7)
Steward	Society of Thoracic Surgeons	Agency for Healthcare Research and Quality
Description	Surgical volume for pediatric and congenital heart surgery: total programmatic volume and programmatic volume stratified by the 5 Society of Thoracic Surgeons - European Association for Cardio-Thoracic Surgery Congenital Heart Surgery Mortality Categories (STAT Mortality Categories), a multi-institutional validated complexity stratification tool	The number of hospital discharges with a pediatric heart surgery procedure for patients with congential heart disease ages 17 years and younger.
Type	Structure	Structure
Data Source	Electronic Clinical Data : Registry	Administrative claims
Level	Facility, Clinician : Group/Practice	Facility
Setting	Hospital/Acute Care Facility	Hospital/Acute Care Facility
Numerator Statement	1) Total number of pediatric and congenital cardiac surgery operations and 2) number of pediatric and congenital cardiac surgery operations in each of the strata of complexity specified by the 5 Society of Thoracic Surgeons - European Association for Cardio-Thoracic Surgery Congenital Heart Surgery Mortality Categories (STAT Mortality Categories), a multi-institutional validated complexity stratification tool	Discharges, for patients ages 17 years and younger, with either • any-listed ICD-9-CM procedure codes for congenital heart disease (1P); or • any-listed ICD-9-CM procedure codes for non-specific heart surgery (2P) and any-listed ICD-9-CM diagnosis codes for congenital heart disease (2D).
Numerator Details	Please see Appendix.	Discharges, for patients ages 17 years and younger, with either • any-listed ICD-9-CM procedure codes for congenital heart disease (1P); or • any-listed ICD-9-CM procedure codes for non-specific heart surgery (2P) and any-listed ICD-9-CM diagnosis codes for congenital heart disease (2D). ICD-9-CM Congenital heart disease procedure codes (1P)1: 3500 CLOSED VALVOTOMY NOS 3501 CLOSED AORTIC VALVOTOMY

	0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories	0340: RACHS-1 Pediatric Heart Surgery Volume (PDI 7)
		3502 CLOSED MITRAL VALVOTOMY 3503 CLOSED PULMON VALVOTOMY 3504 CLOSED TRICUSP VALVOTOMY 3505 ENDOVAS REPL AORTC VALVE 3506 TRNSAPCL REP AORTC VALVE 3507 ENDOVAS REPL PULM VALVE 3508 TRNSAPCL REPL PULM VALVE 3510 OPEN VALVULOPLASTY NOS 3511 OPN AORTIC VALVULOPLASTY 3512 OPN MITRAL VALVULOPLASTY 3513 OPN PULMON VALVULOPLASTY 3514 OPN TRICUS VALVULOPLASTY 3520 OPN/OTH REP HRT VLV NOS 3521 OPN/OTH REP AORT VLV-TIS 3522 OPN/OTH REP AORTIC VALVE 3523 OPN/OTH REP MTRL VLV-TIS 3524 OPN/OTH REP MITRAL VALVE 3525 OPN/OTH REP PULM VLV-TIS 3526 OPN/OTH REPL PUL VALVE 3527 OPN/OTH REP TCSPD VLV-TS 3528 OPN/OTH REPL TCSPD VALVE 3531 PAPILLARY MUSCLE OPS 3532 CHORDAE TENDINEAE OPS 3533 ANNULOPLASTY 3534 INFUNDIBULECTOMY 3535 TRABECUL CARNEAE CORD OP 3539 TISS ADJ TO VALV OPS NEC 3541 ENLARGE EXISTING SEP DEF 3542 CREATE SEPTAL DEFECT

	0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories	0340: RACHS-1 Pediatric Heart Surgery Volume (PDI 7)
		3550 PROSTH REP HRT SEPTA NOS 3551 PROS REP ATRIAL DEF-OPN 3552 PROS REPAIR ATRIA DEF-CL 3553 PROS REP VENTRIC DEF-OPN 3554 PROS REP ENDOCAR CUSHION 3560 GRFT REPAIR HRT SEPT NOS 3561 GRAFT REPAIR ATRIAL DEF 3562 GRAFT REPAIR VENTRIC DEF 3563 GRFT REP ENDOCAR CUSHION 3570 HEART SEPTA REPAIR NOS 3571 ATRIA SEPTA DEF REP NEC 3572 VENTR SEPTA DEF REP NEC 3573 ENDOCAR CUSHION REP NEC 3581 TOT REPAIR TETRAL FALLOT 3582 TOTAL REPAIR OF TAPVC 3583 TOT REP TRUNCUS ARTERIOS 3584 TOT COR TRANSPOS GRT VES 3591 INTERAT VEN RETRN TRANSP 3592 CONDUIT RT VENT-PUL ART 3593 CONDUIT LEFT VENTR-AORTA 3594 CONDUIT ARTIUM-PULM ART 3595 HEART REPAIR REVISION 3598 OTHER HEART SEPTA OPS 3599 OTHER HEART VALVE OPS 3699 HEART VESSEL OP NEC 3733 EXC/DEST HRT LESION OPEN 3736 EXC,DESTRCT,EXCLUS LAA 375 HEART TRANSPLANTATION 3751 HEART TRANSPLANTATION

	0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories	0340: RACHS-1 Pediatric Heart Surgery Volume (PDI 7)
		3752 IMP TOT INT BI HT RP SYS 390 SYSTEMIC-PULM ART SHUNT 3921 CAVAL-PULMON ART ANASTOM 1 The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013. ICD-9-CM Non-specific cardiac procedure codes (2P): 3834 AORTA RESECTION & ANAST 3835 THOR VESSEL RESECT/ANAST 3844 RESECT ABDM AORTA W REPL 3845 RESECT THORAC VES W REPL 3864 EXCISION OF AORTA 3865 THORACIC VESSEL EXCISION 3884 OCCLUDE AORTA NEC 3885 OCCLUDE THORACIC VES NEC 3949 VASC PROC REVISION NEC 3956 REPAIR VESS W TIS PATCH 3957 REP VESS W SYNTH PATCH 3958 REPAIR VESS W PATCH NOS 3959 REPAIR OF VESSEL NEC ICD-9-CM Congenital heart disease diagnosis codes (2D)1: 7450 COMMON TRUNCUS 74510 COMPL TRANSPOS GREAT VES 74511 DOUBLE OUTLET RT VENTRIC 74512 CORRECT TRANSPOS GRT VES

	0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories	0340: RACHS-1 Pediatric Heart Surgery Volume (PDI 7)
		74519 TRANSPOS GREAT VESS NEC 7452 TETRALOGY OF FALLOT 7453 COMMON VENTRICLE 7454 VENTRICULAR SEPT DEFECT 7455 SECUNDUM ATRIAL SEPT DEF 74560 ENDOCARD CUSHION DEF NOS 74561 OSTIUM PRIMUM DEFECT 74569 ENDOCARD CUSHION DEF NEC 7457 COR BILOCULARE 7458 SEPTAL CLOSURE ANOM NEC 7459 SEPTAL CLOSURE ANOM NOS 74600 PULMONARY VALVE ANOM NOS 74601 CONG PULMON VALV ATRESIA 74602 CONG PULMON VALVE STENOS 74609 PULMONARY VALVE ANOM NEC 7461 CONG TRICUSP ATRES/STEN 7462 EBSTEIN'S ANOMALY 7463 CONG AORTA VALV STENOSIS 7464 CONG AORTA VALV INSUFFIC 7465 CONGEN MITRAL STENOSIS 7466 CONG MITRAL INSUFFICIENC 7467 HYPOPLAS LEFT HEART SYND 74681 CONG SUBAORTIC STENOSIS 74682 COR TRIATRIATUM 74683 INFUNDIB PULMON STENOSIS 74684 OBSTRUCT HEART ANOM NEC 74685 CORONARY ARTERY ANOMALY 74687 MALPOSITION OF HEART 74689 CONG HEART ANOMALY NEC

	0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories	0340: RACHS-1 Pediatric Heart Surgery Volume (PDI 7)
		7469 CONG HEART ANOMALY NOS 7470 PATENT DUCTUS ARTERIOSUS 74710 COARCTATION OF AORTA 74711 INTERRUPT OF AORTIC ARCH 74720 CONG ANOM OF AORTA NOS 74721 ANOMALIES OF AORTIC ARCH 74722 AORTIC ATRESIA/STENOSIS 74729 CONG ANOM OF AORTA NEC 7473 PULMONARY ARTERY ANOM 74731 PULMON ART COARCT/ATRES 74732 PULMONARY AV MALFORMATN 74739 OTH ANOM PUL ARTERY/CIRC 74740 GREAT VEIN ANOMALY NOS 74741 TOT ANOM PULM VEN CONNEC 74742 PART ANOM PULM VEN CONN 74749 GREAT VEIN ANOMALY NEC 1 The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013. Exclude cases: • with any-listed ICD-9-CM procedure codes for closed heart valvotomy (3AP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • with any-listed ICD-9-CM procedure codes for atrial septal enlargement (3BP) as the only congenital heart disease

	0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories	0340: RACHS-1 Pediatric Heart Surgery Volume (PDI 7)
		procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • with any-listed ICD-9-CM procedure codes for atrial septal defect repair (3CP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • with any-listed ICD-9-CM procedure codes for ventricular septal defect repair (3DP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • with any-listed ICD-9-CM procedure codes for other surgical occlusion (3FP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • with patent ductus arteriosus (PDA)† and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • with any-listed ICD-9-CM procedure codes for atrial septal defect repair and enlargement (4P) as the only congenital heart disease procedure without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • MDC 14 (pregnancy, childbirth and pueperium) • with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing) † PDA is defined as any-listed ICD-9-CM diagnosis code for PDA

	0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories	0340: RACHS-1 Pediatric Heart Surgery Volume (PDI 7)
		closure (3D) as the only congenital heart disease diagnosis code besides atrial septal defect or ventricular septal defect (5D), and any-listed ICD-9-CM procedure code for occlusion of thoracic vessel (3EP) as the only congenital heart disease procedure code. ICD-9-CM Closed heart valvotomy procedure codes (3AP): 3500 CLOSED VALVOTOMY NOS 3501 CLOSED AORTIC VALVOTOMY 3502 CLOSED MITRAL VALVOTOMY 3503 CLOSED PULMON VALVOTOMY 3504 CLOSED TRICUSP VALVOTOMY ICD-9-CM Atrial septal enlargement procedure codes (3BP): 3541 ENLARGE EXISTING SEP DEF 3542 CREATE SEPTAL DEFECT ICD-9-CM Atrial septal defect repair procedure codes (3CP): 3551 PROS REP ATRIAL DEF-OPN 3571 ATRIA SEPTA DEF REP NEC ICD-9-CM Ventricular septal defect repair procedure codes (3DP): 3553 PROS REP VENTRIC DEF-OPN 3572 VENTR SEPTA DEF REP NEC ICD-9-CM Occlusion of thoracic vessel procedure code (3EP): 3885 OCCLUDE THORACIC VES NEC ICD-9-CM PDA closure diagnosis code (3D):

	0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories	0340: RACHS-1 Pediatric Heart Surgery Volume (PDI 7)
		7470 PATENT DUCTUS ARTERIOSUS ICD-9-CM Other surgical occlusion procedure codes (3FP): 3884 OCCLUDE AORTA NEC 3885 OCCLUDE THORACIC VES NEC 3959 REPAIR OF VESSEL NEC ICD-9-CM Atrial septal defect repair and enlargement procedure codes (4P): 3541 ENLARGE EXISTING SEP DEF 3552 PROS REPAIR ATRIA DEF-CL ICD-9-CM Extracorporeal circulation procedure code (5P): 3961 EXTRACORPOREAL CIRCULAT ICD-9-CM Catheterization procedure codes (6P): 3721 RT HEART CARDIAC CATH 3722 LEFT HEART CARDIAC CATH 3723 RT/LEFT HEART CARD CATH 8842 CONTRAST AORTOGRAM 8843 CONTR PULMON ARTERIOGRAM 8844 CONTR THOR ARTERIOGR NEC 8850 ANGIOCARDIOGRAPHY NOS 8851 VENA CAV ANGIOCARDIOGRAM 8852 RT HEART ANGIOCARDIOGRAM 8853 LT HEART ANGIOCARDIOGRAM 8854 RT & LT HEART ANGIOCARD 8855 CORONAR ARTERIOGR-1 CATH 8856 CORONAR ARTERIOGR-2 CATH

	0732: Surgical Volume for Pediatric and Congenital Heart Surgery: Total Programmatic Volume and Programmatic Volume Stratified by the 5 STAT Mortality Categories	0340: RACHS-1 Pediatric Heart Surgery Volume (PDI 7)
		8857 CORONARY ARTERIOGRAM NEC 8858 NEGATVE-CONTR CARDIOGRAM
Denominator Statement	N/A	Not applicable
Denominator Details	N/A	Not applicable
Exclusions	N/A	Not applicable. This measure does not have a denominator due to the fact it is a volume measure.
Exclusion Details	N/A	Not applicable. This measure does not have a denominator due to the fact it is a volume measure.
Risk Adjustment	Stratification by risk category/subgroup	No risk adjustment or risk stratification
Stratification	Please see Appendix	Not applicable
Type Score	Count Better quality = Higher score	Count Better quality = Higher score
Algorithm	Please refer to numerator and denominator sections for detailed information. No diagram provided	The volume is the number of discharges with a procedure for pediatric heart surgery.
Submission items	5.1 Identified measures: Four related measures are identified. Three are STS measures, one is the mortality measure with which this measure is paired. The fourth measure is 0339, a pediatric heart surgery mortality measure based on administrative data that uses a risk-adjustment classification – RACHS-1. Its companion volume measure, 0340, also uses administrative data. The developers will be asked to continue harmonization effort as ICD-10 is implemented.	

Comparison of NQF #0733 and NQF #0339

	0733: Operative Mortality Stratified by the 5 STAT Mortality Categories	0339: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)
Steward	The Society of Thoracic Surgeons	Agency for Healthcare Research and Quality
Description	percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure, stratified by the five STAT Mortality Levels, a multi-institutional validated complexity stratification tool	In-hospital deaths per 1,000 pediatric heart surgery admissions among patients with congenital heart disease ages 17 years and younger. Excludes obstetric discharges; cases with transcatheter interventions as a single cardiac procedure, performed without bypass but with catheterization; cases with septal defect repairs as single cardiac procedures without bypass; cases with heart transplants; premature infants with patent ductus arteriosus (PDA) closure as the only cardiac procedure; age less than 30 days with PDA closure as only cardiac procedure; transfers to another hospital; cases with an unknown disposition; and neonates with birth weight less than 500 grams. [NOTE: The software provides the rate per hospital discharge. However, common practice reports the measure as per 1,000 discharges. The user must multiply the rate obtained from the software by 1,000 to report in-hospital deaths per 1,000 hospital discharges.]
Type	Outcome	Outcome
Data Source	Electronic Clinical Data : Registry	Administrative claims
Level	Facility, Clinician : Group/Practice	Facility
Setting	Hospital/Acute Care Facility	Hospital/Acute Care Facility
Numerator Statement	Number of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure, stratified by the five STAT Mortality Levels, a multi-institutional validated complexity stratification tool	Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.
Numerator Details	Number of index pediatric and/or congenital heart surgery operations with an operative mortality;	Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.

	0733: Operative Mortality Stratified by the 5 STAT Mortality Categories	0339: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)
	Operative mortality is determined by a combination of the following two data elements (STS Congenital Heart Surgery Database Version 3.0): 1. Mortality status at database discharge (MtDBDisStat) 2. Status at 30 days after surgery (Mt30Stat)	
Denominator Statement	All patients undergoing index pediatric and/or congenital heart surgery	Discharges, for patients ages 17 years and younger, with either • any-listed ICD-9-CM procedure codes for congenital heart disease (1P); or • any-listed ICD-9-CM procedure codes for non-specific heart surgery (2P) and any-listed ICD-9-CM diagnosis codes for congenital heart disease (2D).
Denominator Details	Number of index cardiac operations in each level of complexity stratification using the 5 STAT Mortality Categories, a multi-institutional validated complexity stratification tool. Index operation is defined as the first cardiac operation of a hospitalization. For a complete list of operations and their respective STAT category, please see the Appendix.	Discharges, for patients ages 17 years and younger, with either • any-listed ICD-9-CM procedure codes for congenital heart disease (1P); or • any-listed ICD-9-CM procedure codes for non-specific heart surgery (2P) and any-listed ICD-9-CM diagnosis codes for congenital heart disease (2D). ICD-9-CM Congenital heart disease procedure codes (1P)1: 3500 CLOSED VALVOTOMY NOS 3501 CLOSED AORTIC VALVOTOMY 3502 CLOSED MITRAL VALVOTOMY 3503 CLOSED PULMON VALVOTOMY 3504 CLOSED TRICUSP VALVOTOMY 3505 ENDOVAS REPL AORTC VALVE 3506 TRNSAPCL REP AORTC VALVE 3507 ENDOVAS REPL PULM VALVE 3508 TRNSAPCL REPL PULM VALVE 3510 OPEN VALVULOPLASTY NOS 3511 OPN AORTIC VALVULOPLASTY

	0733: Operative Mortality Stratified by the 5 STAT Mortality Categories	0339: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)
		3512 OPN MITRAL VALVULOPLASTY 3513 OPN PULMON VALVULOPLASTY 3514 OPN TRICUS VALVULOPLASTY 3520 OPN/OTH REP HRT VLV NOS 3521 OPN/OTH REP AORT VLV-TIS 3522 OPN/OTH REP AORTIC VALVE 3523 OPN/OTH REP MTRL VLV-TIS 3524 OPN/OTH REP MITRAL VALVE 3525 OPN/OTH REP PULM VLV-TIS 3526 OPN/OTH REPL PUL VALVE 3527 OPN/OTH REP TCSPD VLV-TS 3528 OPN/OTH REPL TCSPD VALVE 3531 PAPILLARY MUSCLE OPS 3532 CHORDAE TENDINEAE OPS 3533 ANNULOPLASTY 3534 INFUNDIBULECTOMY 3535 TRABECUL CARNEAE CORD OP 3539 TISS ADJ TO VALV OPS NEC 3541 ENLARGE EXISTING SEP DEF 3542 CREATE SEPTAL DEFECT 3550 PROSTH REP HRT SEPTA NOS 3551 PROS REP ATRIAL DEF-OPN 3552 PROS REPAIR ATRIA DEF-CL 3553 PROS REP VENTRIC DEF-OPN 3554 PROS REP ENDOCAR CUSHION 3560 GRFT REPAIR HRT SEPT NOS 3561 GRAFT REPAIR ATRIAL DEF 3562 GRAFT REPAIR VENTRIC DEF 3563 GRFT REP ENDOCAR CUSHION 3570 HEART SEPTA REPAIR NOS

	0733: Operative Mortality Stratified by the 5 STAT Mortality Categories	0339: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)
		3571 ATRIA SEPTA DEF REP NEC 3572 VENTR SEPTA DEF REP NEC 3573 ENDOCAR CUSHION REP NEC 3581 TOT REPAIR TETRAL FALLOT 3582 TOTAL REPAIR OF TAPVC 3583 TOT REP TRUNCUS ARTERIOS 3584 TOT COR TRANSPOS GRT VES 3591 INTERAT VEN RETRN TRANSP 3592 CONDUIT RT VENT-PUL ART 3593 CONDUIT LEFT VENTR-AORTA 3594 CONDUIT ARTIUM-PULM ART 3595 HEART REPAIR REVISION 3598 OTHER HEART SEPTA OPS 3599 OTHER HEART VALVE OPS 3699 HEART VESSEL OP NEC 3733 EXC/DEST HRT LESION OPEN 3736 EXC,DESTRCT,EXCLUS LAA 375 HEART TRANSPLANTATION 3751 HEART TRANSPLANTATION 3752 IMP TOT INT BI HT RP SYS 390 SYSTEMIC-PULM ART SHUNT 3921 CAVAL-PULMON ART ANASTOM 1 The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013. ICD-9-CM Non-specific heart surgery procedure codes (2P): 3834 AORTA RESECTION & ANAST 3835 THOR VESSEL RESECT/ANAST 3844 RESECT ABDM AORTA W REPL

	0733: Operative Mortality Stratified by the 5 STAT Mortality Categories	0339: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)
		3845 RESECT THORAC VES W REPL 3864 EXCISION OF AORTA 3865 THORACIC VESSEL EXCISION 3884 OCCLUDE AORTA NEC 3885 OCCLUDE THORACIC VES NEC 3949 VASC PROC REVISION NEC 3956 REPAIR VESS W TIS PATCH 3957 REP VESS W SYNTH PATCH 3958 REPAIR VESS W PATCH NOS 3959 REPAIR OF VESSEL NEC ICD-9-CM Congenital heart disease diagnosis codes (2D)1: 7450 COMMON TRUNCUS 74510 COMPL TRANSPOS GREAT VES 74511 DOUBLE OUTLET RT VENTRIC 74512 CORRECT TRANSPOS GRT VES 74519 TRANSPOS GREAT VESS NEC 7452 TETRALOGY OF FALLOT 7453 COMMON VENTRICLE 7454 VENTRICULAR SEPT DEFECT 7455 SECUNDUM ATRIAL SEPT DEF 74560 ENDOCARD CUSHION DEF NOS 74561 OSTIUM PRIMUM DEFECT 74569 ENDOCARD CUSHION DEF NEC 7457 COR BILOCULARE 7458 SEPTAL CLOSURE ANOM NEC 7459 SEPTAL CLOSURE ANOM NOS 74600 PULMONARY VALVE ANOM NOS 74601 CONG PULMON VALV ATRESIA 74602 CONG PULMON VALVE STENOS

	0733: Operative Mortality Stratified by the 5 STAT Mortality Categories	0339: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)
		74609 PULMONARY VALVE ANOM NEC 7461 CONG TRICUSP ATRES/STEN 7462 EBSTEIN'S ANOMALY 7463 CONG AORTA VALV STENOSIS 7464 CONG AORTA VALV INSUFFIC 7465 CONGEN MITRAL STENOSIS 7466 CONG MITRAL INSUFFICIENC 7467 HYPOPLAS LEFT HEART SYND 74681 CONG SUBAORTIC STENOSIS 74682 COR TRIATRIATUM 74683 INFUNDIB PULMON STENOSIS 74684 OBSTRUCT HEART ANOM NEC 74685 CORONARY ARTERY ANOMALY 74687 MALPOSITION OF HEART 74689 CONG HEART ANOMALY NEC 7469 CONG HEART ANOMALY NOS 7470 PATENT DUCTUS ARTERIOSUS 74710 COARCTATION OF AORTA 74711 INTERRUPT OF AORTIC ARCH 74720 CONG ANOM OF AORTA NOS 74721 ANOMALIES OF AORTIC ARCH 74722 AORTIC ATRESIA/STENOSIS 74729 CONG ANOM OF AORTA NEC 7473 PULMONARY ARTERY ANOM 74731 PULMON ART COARCT/ATRES 74732 PULMONARY AV MALFORMATN 74739 OTH ANOM PUL ARTERY/CIRC 74740 GREAT VEIN ANOMALY NOS 74741 TOT ANOM PULM VEN CONNEC 74742 PART ANOM PULM VEN CONN

	0733: Operative Mortality Stratified by the 5 STAT Mortality Categories	0339: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)
		74749 GREAT VEIN ANOMALY NEC 1 The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.
Exclusions	N/A	Exclude cases: • with any-listed ICD-9-CM procedure codes for closed heart valvotomy (3AP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • with any-listed ICD-9-CM procedure codes for atrial septal enlargement (3BP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • with any-listed ICD-9-CM procedure codes for atrial septal defect repair (3CP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • with any-listed ICD-9-CM procedure codes for ventricular septal defect repair (3DP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • with any-listed ICD-9-CM procedure codes for other surgical occlusion (3FP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • with patent ductus arteriosus (PDA)† and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P) • with any-listed ICD-9-CM procedure codes for atrial septal defect repair and enlargement (4P) as the only congenital heart disease procedure without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)

	0733: Operative Mortality Stratified by the 5 STAT Mortality Categories	0339: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)
		• with any-listed ICD-9-CM procedure codes for heart transplant (7P) • with any-listed ICD-9-CM diagnosis codes for premature infant (4D) and PDA† • with any-listed ICD-9-CM diagnosis codes for atrial septal defect or ventricular septal defect (5D) and PDA† • age less than or equal to 30 days with PDA† • transferring to another short-term hospital (DISP=2) • neonates with birth weight less than 500 grams (Birth Weight Category 1) • MDC 14 (pregnancy, childbirth and pueperium) • with missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing) † PDA is defined as any-listed ICD-9-CM diagnosis code for PDA† closure (3D) as the only congenital heart disease diagnosis code besides atrial septal defect or ventricular septal defect (5D), and any-listed ICD-9-CM procedure code for occlusion of thoracic vessel (3EP) as the only congenital heart disease procedure code. See Pediatric Quality Indicators Appendices: • Appendix I – Definitions of Neonate, Newborn, Normal Newborn, and Outborn • Appendix L- Low Birth Weight Categories
Exclusion Details	N/A	ICD-9-CM Closed heart valvotomy procedure codes (3AP): 3500 CLOSED VALVOTOMY NOS 3501 CLOSED AORTIC VALVOTOMY 3502 CLOSED MITRAL VALVOTOMY 3503 CLOSED PULMON VALVOTOMY 3504 CLOSED TRICUSP VALVOTOMY ICD-9-CM Atrial septal enlargement procedure codes (3BP):

	0733: Operative Mortality Stratified by the 5 STAT Mortality Categories	0339: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)
		3541 ENLARGE EXISTING SEP DEF 3542 CREATE SEPTAL DEFECT ICD-9-CM Atrial septal defect repair procedure codes (3CP): 3551 PROS REP ATRIAL DEF-OPN 3571 ATRIA SEPTA DEF REP NEC ICD-9-CM Ventricular septal defect repair procedure codes (3DP): 3553 PROS REP VENTRIC DEF-OPN 3572 VENTR SEPTA DEF REP NEC ICD-9-CM Occlusion of thoracic vessel procedure codes (3EP): 3885 OCCLUDE THORACIC VES NEC ICD-9-CM PDA closure diagnosis code (3D): 7470 PATENT DUCTUS ARTERIOSUS ICD-9-CM Other surgical occlusion procedure codes (3FP): 3884 OCCLUDE AORTA NEC 3885 OCCLUDE THORACIC VES NEC 3959 REPAIR OF VESSEL NEC ICD-9-CM Atrial septal defect repair and enlargement procedure codes (4P): 3541 ENLARGE EXISTING SEP DEF 3552 PROS REPAIR ATRIA DEF-CL ICD-9-CM Extracorporeal circulation procedure code (5P): 3961 EXTRACORPOREAL CIRCULAT ICD-9-CM Atrial septal defect or ventricular septal defect diagnosis

	0733: Operative Mortality Stratified by the 5 STAT Mortality Categories	0339: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)
		codes (5D): 7454 VENTRICULAR SEPT DEFECT 7455 SECUNDUM ATRIAL SEPT DEF ICD-9-CM Catheterization procedure codes (6P): 3721 RT HEART CARDIAC CATH 3722 LEFT HEART CARDIAC CATH 3723 RT/LEFT HEART CARD CATH 8842 CONTRAST AORTOGRAM 8843 CONTR PULMON ARTERIOGRAM 8844 CONTR THOR ARTERIOGR NEC 8850 ANGIOCARDIOGRAPHY NOS 8851 VENA CAV ANGIOCARDIOGRAM 8852 RT HEART ANGIOCARDIOGRAM 8853 LT HEART ANGIOCARDIOGRAM 8854 RT & LT HEART ANGIOCARD 8855 CORONAR ARTERIOGR-1 CATH 8856 CORONAR ARTERIOGR-2 CATH 8857 CORONARY ARTERIOGRAM NEC 8858 NEGATVE-CONTR CARDIOGRAM ICD-9-CM Heart transplant procedure codes (7P)1: 375 HEART TRANSPLANTATION 3751 HEART TRANSPLANTATION 3752 IMP TOT INT BI HT RP SYS 1 The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013. ICD-9-CM Premature infant diagnosis codes (4D):

	0733: Operative Mortality Stratified by the 5 STAT Mortality Categories	0339: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)
		76500 EXTREME IMMATUR WTNOS 76501 EXTREME IMMATUR <500G 76502 EXTREME IMMATUR 500-749G 76503 EXTREME IMMATUR 750-999G 76504 EXTREME IMMAT 1000-1249G 76505 EXTREME IMMAT 1250-1499G 76506 EXTREME IMMAT 1500-1749G 76507 EXTREME IMMAT 1750-1999G 76508 EXTREME IMMAT 2000-2499G 76509 EXTREME IMMAT 2500+G 76510 PRETERM INFANT NEC WTNOS 76511 PRETERM NEC <500G 76512 PRETERM NEC 500-749G 76513 PRETERM NEC 750-999G 76514 PRETERM NEC 1000-1249G 76515 PRETERM NEC 1250-1499G 76516 PRETERM NEC 1500-1749G 76517 PRETERM NEC 1750-1999G 76518 PRETERM NEC 2000-2499G 76519 PRETERM NEC 2500+G
Risk Adjustment	Stratification by risk category/subgroup	Statistical risk model
Stratification	Please see Appendix	The user has the option to stratify by gender, birth weight, age in days, age in years, race / ethnicity, primary payer, and custom stratifiers.
Type Score	Rate/proportion Better quality = Lower score	Rate/proportion Better quality = Lower score
Algorithm	Please refer to numerator and denominator sections as well as the attachments for detailed information. No diagram provided	The indicator is expressed as a rate, and is defined as outcome of interest / population at risk or numerator / denominator. A standardized mortality ratio will also be reported. The AHRQ Quality Indicators (AHRQ QI) software performs five steps to produce the rates. 1) Discharge-level data is used to mark inpatient records containing the outcome of interest and 2) the population at risk. For provider indicators, the population at risk is also derived from hospital discharge

	0733: Operative Mortality Stratified by the 5 STAT Mortality Categories	0339: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)
		records; for area indicators, the population at risk is derived from U.S. Census data. 3) Calculate observed rates. Using output from steps 1 and 2, rates are calculated for user-specified combinations of stratifiers. 4) Calculate expected rates. Regression coefficients from a reference population database are applied to the discharge records and aggregated to the provider or area level. 5) Calculate risk-adjusted rate. Use the indirect standardization to account for case-mix, based on the standardized mortality ratio. 6) Calculate smoothed rate. A univariate shrinkage factor is applied to the risk-adjusted rates. The shrinkage estimate reflects a reliability adjustment unique to each indicator. Full information on calculation algorithms and specifications can be found at http://qualityindicators.ahrq.gov/modules/pdi_resources.aspx.
Submission items	5.1 Identified measures: Four related measures are identified. Three are STS measures, one is the volume measure with which this measure is paired. One is a new pediatric and congenital heart surgery risk-adjusted mortality measure. The fourth measure is 0339, a pediatric heart surgery mortality measure based on administrative data that uses a risk-adjustment classification – RACHS-1. Its companion volume measure, 0340, also uses administrative data. The developer noted that the list of eligible procedures has been cross-mapped to both CPT and ICD-9 codes making it possible to collect the data for the measure outside the registry. The developers will be asked to continue harmonization effort as ICD-10 is implemented.	

Appendix H: Assessment of Measurement Gaps in the Portfolio of Surgery-related Measures

The table below identifies NQF-endorsed™ surgery-related measures, 4 new candidate measures, previously endorsed measures and the topic areas into which they best fit. The table helps identify gap areas for which evidence-based surgery-related measures might be of importance if appropriate measures were developed.

Surgery Endorsement Maintenance Committee members have reviewed the topic areas, identified gaps in measurement within the topic areas and provided potential measure concepts that could address the gaps identified. It is important to know that development of this information neither compels measure development nor does it guarantee measure endorsement.

Cross-Cutting - Inpatient				
NQF #	**Measure Title**	**Measure Steward**	**Measure Status**	**Initial Endorsement Date**
138	National Healthcare Safety Network (NHSN) Catheter-associated Urinary Tract Infection (CAUTI) Outcome Measure	Centers for Disease Control and Prevention	Endorsed	August 10, 2009
139	National Healthcare Safety Network (NHSN) Central line-associated Bloodstream Infection (CLABSI) Outcome Measure	Centers for Disease Control and Prevention	Endorsed	August 10, 2009
218	Surgery Patients Who Received Appropriate Venous Thromboembolism (VTE) Prophylaxis Within 24 Hours Prior to Surgery to 24 Hours After Surgery End Time	Centers for Medicare & Medicaid Services	Endorsed	August 10, 2009
239	Venous Thromboembolism (VTE) Prophylaxis	American Medical Association - Physician Consortium for Performance Improvement	Endorsed-Time-Limited	May 01, 2007
284	Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period	Centers for Medicare & Medicaid Services	Endorsed	Oct 01, 2007
301	Surgery patients with appropriate hair removal	Centers for Medicare & Medicaid Services	Endorsed - Reserve	Nov 15, 2007
344	Accidental Puncture or Laceration Rate (PDI 1)	Agency for Healthcare	Endorsed	May 15, 2008

Cross-Cutting - Inpatient				
NQF #	**Measure Title**	**Measure Steward**	**Measure Status**	**Initial Endorsement Date**
		Research and Quality		
345	Accidental Puncture or Laceration Rate (PSI 15)	Agency for Healthcare Research and Quality	Endorsed	May 15, 2008
346	Iatrogenic Pneumothorax Rate (PSI 6)	Agency for Healthcare Research and Quality	Endorsed	May 15, 2008
347	Death Rate in Low-Mortality Diagnosis Related Groups (PSI2)	Agency for Healthcare Research and Quality	Endorsed	May 15, 2008
349	Transfusion Reaction Count (PSI 16)	Agency for Healthcare Research and Quality	Endorsed	May 15, 2008
350	Transfusion Reaction Count (PDI 13)	Agency for Healthcare Research and Quality	Endorsed	May 15, 2008
351	Death Among Surgical Inpatients with Serious, Treatable Complications (PSI 4)	Agency for Healthcare Research and Quality	Endorsed	May 15, 2008
352	Failure to Rescue In-Hospital Mortality (risk adjusted)	The Children´s Hospital of Philadelphia	Endorsed	May 15, 2008
353	Failure to Rescue 30-Day Mortality (risk adjusted	The Children´s Hospital of Philadelphia	Endorsed	May 15, 2008
362	Foreign Body Left After Procedure (PDI 3)	Agency for Healthcare Research and Quality	Endorsed	May 15, 2008
363	Foreign Body Left During Procedure (PSI 5)	Agency for Healthcare Research and Quality	Endorsed	Jun 24, 2010
371	Venous Thromboembolism Prophylaxis	The Joint Commission	Endorsed	May 15, 2008
372	Intensive Care Unit Venous Thromboembolism Prophylaxis	The Joint Commission	Endorsed	May 15, 2008
373	Venous Thromboembolism Patients with Anticoagulant Overlap Therapy	The Joint Commission	Endorsed	May 15, 2008
450	Postoperative Pulmonary Embolism or Deep Vein Thrombosis Rate (PSI 12)	Agency for Healthcare Research and Quality	Endorsed	Jul 31, 2008
527	Prophylactic antibiotic received within 1 hour prior to surgical incision	Centers for Medicare & Medicaid Services	Endorsed - Reserve	Aug 10, 2009

Cross-Cutting - Inpatient				
NQF #	**Measure Title**	**Measure Steward**	**Measure Status**	**Initial Endorsement Date**
528	Prophylactic antibiotic selection for surgical patients	Centers for Medicare & Medicaid Services	Endorsed - Reserve	Aug 10, 2009
529	Prophylactic antibiotics discontinued within 24 hours after surgery end time	Centers for Medicare & Medicaid Services	Endorsed	Aug 10, 2009
531	Patient Safety for Selected Indicators	Agency for Healthcare Research and Quality	Endorsed	Jan 03, 2013
533	Postoperative Respiratory Failure Rate (PSI 11)	Agency for Healthcare Research and Quality	Endorsed	Aug 05, 2009
753	American College of Surgeons – Centers for Disease Control and Prevention (ACS-CDC) Harmonized Procedure Specific Surgical Site Infection (SSI) Outcome Measure	Centers for Disease Control and Prevention	Endorsed	Jan 17, 2012
1789	Hospital-Wide All-Cause Unplanned Readmission Measure	Centers for Medicare & Medicaid Services	Endorsed	Apr 24, 2012
2158	Payment-Standardized Medicare Spending Per Beneficiary (MSPB)	Centers for Medicare & Medicaid Services	Endorsed	Dec 09, 2013

Gaps (and concepts) for which measures might provide important contributions (please list below):

- Expand current Measure 0533, Post op respiratory failure, or consider new one that includes diseases/disorders of the respiratory system; diseases/disorders of circulatory system; and pregnancy, childbirth, puerperium.
- Review supporting literature for Measure 0284, Perioperative beta blockers, at the next review cycle in light of newer data that is less supportive of perioperative use
- Measures that evaluate an aggregated delivery of healthcare (such as the failure to rescue measures 0351, 0352, 0353).
- Reevaluate Measures 0362 and 0363, Retained foreign body, for modification that avoids potential unintended consequence of delayed skin closure (such as final count prior to anesthesia arousal or leaving OR)
- Reevaluate Measure 1789, All cause readmissions, in light of new data that questions use in some patient groups
- Composite measures – Look for opportunities to increase numbers of such measures
- Outcome measures, particularly from extensively validated databases
- Measures around consent process, shared decision making including use of educational materials for decision making.

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

ISBN [Assigned by Communications]
©2015 National Quality Forum