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SURGERY ENDORSEMENT MAINTENANCE 2010: TECHNICAL REPORT

JUNE 2012

NATIONAL VOLUNTARY CONSENSUS STANDARDS: SURGERY ENDORSEMENT MAINTENANCE 2010: A CONSENSUS REPORT

TABLE OF CONTENTS

NATIONAL VOLUNTARY CONSENSUS STANDARDS: SURGERY ENDORSEMENT MAINTENANCE 2010: TECHNICAL REPORT

BACKGROUND

The rate of surgical procedures continues to rise each year, as has the number and type of sites performing surgical procedures. In 2006, 46 million inpatient surgeries were performed in the United States.[1] In addition, more than 53 million procedures were performed in ambulatory surgery centers.[2] In 2007, there were 4,964 Medicare-certified ambulatory surgery centers, which represents a 64 percent increase from 2000.[3] Assessing quality of care, using measures that reflect the current evidentiary base, across the many and varied locations in which surgical procedures are performed is important to ensure safe, cost-effective care. The National Quality Forum (NQF) has endorsed a number of consensus standards for surgical procedures and care of surgical patients over the past six years. The ongoing evaluation and updating of all NQF-endorsed® surgical measures and consideration of new measures will ensure the currency and relevance of NQF's portfolio of voluntary consensus standards.

MEASURE EVALUATION

Using NQF's 2009 measure evaluation criteria[4] (prior to implementing the task force recommendations), the Surgery Steering Committee evaluated a total of 73 measures, 48 endorsed measures undergoing maintenance review and 25 new measures for suitability as voluntary consensus standards for accountability and quality improvement.

Steering Committee work groups initially rated each measure for compliance with the sub-criteria. The entire Steering Committee evaluated each measure based on the four main criteria—Importance to Measure and Report, Scientific Acceptability of Measure Properties, Usability, and Feasibility. The Committee's evaluation summary tables for each measure begin on page 9.

	MAINTENANCE	NEW	TOTAL
Measures under consideration	**48**	**25**	**73**
Withdrawn from consideration	**1**	**12**	**13**
Recommended	**42**	**9**	**51**
Reserve status	**2**		**2**
Not recommended	**5**	**4**	**9**
Reasons for not recommending	**Importance – 5**	**Importance – 1** **Overall -3**	

OVERARCHING MEASURE EVALUATION ISSUES

During the Steering Committee's discussion of the measures, several overarching issues emerged and were factored into the Committee's ratings and recommendations for many measures.

Clarity of Measure Specifications

Committee members requested clarification of a number of measure specifications related to incompleteness of specifications, inconsistencies in language, and construction of algorithms. The Committee considered the documents and appendices that were provided as attachments to the measure submissions to be useful in evaluating the measures; however, it urged measure developers to include all pertinent information within the submission forms to ensure accurate understanding of the measures for potential users and to provide clarity to the public.

Current Evidence and Relationship to Outcomes

The Committee expressed its preference for measures that provide clear and direct evidence of the measure's proximity to an improved outcome and in some cases asked measure developers to consider development of such measures as replacements for existing measures. Ensuring that the evidence provided to support the measure is current was highlighted, particularly for measures undergoing maintenance.

Disparities

The Committee noted that a number of measure submissions provided negligible information on disparities. In response, the Committee requested measure developers to submit additional

information or, in the absence of disparities information, a plan to collect data in a way that permits disparities analyses in the future.

Impact on Quality

The Committee suggested measure developers provide detail on how their NQF-endorsed measure(s) have impacted quality since initial endorsement. The Committee considered such information as vital to the process of deciding whether a measure should retain endorsement.

Inclusion of Individual Clinician Level of Measurement

The Committee was sensitive to a number of issues that should be considered as organizations determine at what level of analysis measures should be structured and reported. The Committee agreed that where appropriate, reporting at the clinician level is important but should be done only where the issues are carefully considered. Public reporting at the facility level may be suitable only for accountability purposes due to issues such as attribution and adequate sample size but must also be balanced with consumer desires for this type of information. The Committee strongly encouraged facilities and institutions, in which the measure is currently publicly reported or used for other accountability purposes as a facility-level measure, to examine the performance at the individual clinician level for quality improvement purposes

Participation in Proprietary Registries

A number of measures that were advanced for continued endorsement rely on registry data, although they do not require participation in the identified registry. In its continued discussion of registries, the Committee took the position that endorsing a measure that requires use of registry data should be carefully considered because by default it requires participation in the registry. The data for a number of measures are not routinely collected outside the registry, which adds to the burden of collection for organizations. The use of such measures makes it essential that the specifications are fully detailed in a transparent fashion and that required data elements are standardized.

Public Reporting

The NQF endorsement criteria specify that measures submitted for endorsement must be intended for use for quality improvement and accountability. The Committee noted that measure submission forms require and are expected to include public reporting plans. To that end,

additional information was requested from developers that did not provide them. Additionally, the Committee asked developers to explain how measure information was conveyed to the public, in order to assess how a measure may be perceived.

Related and Competing Measures

A subset of the candidate consensus standards was related or competing with other candidate or current NQF-endorsed measures. The Steering Committee first evaluated each candidate standard on its own merits and then compared the measures that met NQF evaluation criteria with the related or competing measures using NQF's harmonization and competing measures guidance.

Topped Out Measures and Measures Recommended for Endorsement and Placement in Reserve Status

The Committee debated the definition of "topped out." It agreed that some measures are performing at such a high level that continued efforts to improve performance are probably not warranted. With an NQF draft proposal for special designation, later presented and approved by the NQF Board of Directors, as a starting point, the Committee agreed that such measures should be maintained in the NQF portfolio with some specific designation provided they address important aspects of quality that should be sustained and fully meet all endorsement criteria with the exception of "importance" as long as failure to meet this criterion was due to a high level of performance with little to no variation as outlined in subcriterion 1b. The Committee wanted to ensure that performance among the subpopulations included in measures was high; in some cases there were disparities that suggested a need to continue specific measures. Also, there was concern that failing to continue endorsement of maintenance measures that meet all evaluation criteria but are not viewed as important for regular continued monitoring because of a high level of performance could result in inattention to the process or outcome and consequently to reduced levels of performance and potentially poor patient outcomes. This latter concern prompted the Committee to support the proposal to place high-performing measures in "Reserve Status[5]," that is, they retain endorsement but do not have to be regularly reported.

Unintended Consequences

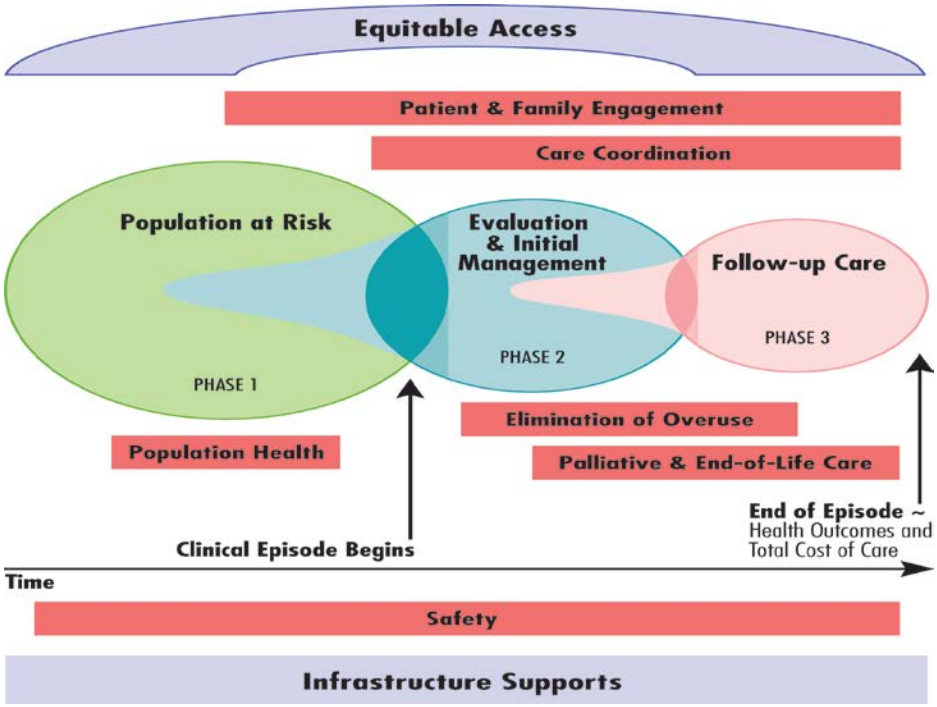
Committee members noted measures that could produce unintended consequences on patient care. They indicated that, where relevant, the care provided in healthcare institutions should be linked with patient outcome after discharge.

RECOMMENDATIONS FOR FUTURE MEASURE DEVELOPMENT

Episode of Care Measurement Framework

NQF's generic episode of care measurement framework (Figure 1) can be used to conceptualize quality performance measures relevant to pre-, intra-, and post-operative surgical care. Phase 1 could represent individuals with potential to undergo surgery. Phase 2 could represent patients for whom surgery is planned as well as during the intra-operative period and Phase 3 could represent post-operative management, follow up and related ongoing care.

Figure 1. Integrated Framework for Performance Measurement



While all phases are represented in this project, gaps that represent opportunities for improvement remain. To address the gaps, an initial list of topic areas and descriptions of measures that might begin to fill the topic areas and facilitate measure development was prepared and nested within a table of measures that are NQF-endorsed or was under endorsement

consideration in this project. The table regarding the identified gaps and areas in which performance measures should be pursued to facilitate improvement in quality of surgical care throughout the continuum of that care is provided as Appendix D.

ENDORSED CONSENSUS STANDARDS

This report presents the results of the evaluation of 60 (51 endorsed and 9 that were not recommended) measures considered under the NQF Consensus Development Process (CDP). 51 (42 maintenance and 9 newly submitted) measures have been endorsed by NQF as voluntary consensus standards suitable for accountability and quality improvement. Of the 51, 2 measures have been placed into reserve status.

EVALUATION SUMMARY TABLES

CARDIAC-CABG

Endorsed Measures:

0114 Risk-adjusted post-operative renal failure
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percent of patients aged 18 years and older undergoing isolated CABG (without pre-existing renal failure) who develop post-operative renal failure or require dialysis. Numerator Statement: Number of patients undergoing isolated CABG (without pre-existing renal failure) who develop post-operative renal failure or require dialysis. Denominator Statement: All patients undergoing isolated CABG. Exclusions: Patients with documented history of renal failure, baseline serum creatinine of 4.0 or higher; prior renal transplants are not considered pre-operative renal failure unless since transplantation their Cr has been or is 4.0 or higher. Adjustment/Stratification: case-mix adjustment/No stratification is required for this measure. Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities Type of Measure: Outcome Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-17; N-1; A-1 Rationale: This is an important metric for benchmarking data on patients undergoing isolated CABG who develop post-operative renal failure or require dialysis.
If applicable, Conditions/Questions for Developer: 1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities. 2. 2a.1 Numerator Statement: The statement does not indicate participation in the STS database is required. 3. 2a.2 Numerator Time Window: Provide the time period in which cases are eligible for inclusion in the numerator. 4. 2a.3 Numerator Details: Provide a more detailed definition of renal failure. Consideration should be given to using the RIFLE criteria. 5. 2a.8 Denominator Details: Are re-operated patients included? 6. 4e.2 Costs to Implement the Measure: The cost of data abstraction needs to be clearer. Developer Response: 1. Data on disparities are provided in the form. 2. Participation in the STS Database is not required 3. During the hospitalization for surgery, which includes the entire postoperative period up to discharge, even if over 30 days. 4. STS will use the RIFLE criteria in its analyses and report of the renal failure measure. The renal failure section of the STS

0114 Risk-adjusted post-operative renal failure
Adult Cardiac Surgery Database, v2.73 Training Manual will be harmonized with the risk, injury and failure categories of the RIFLE criteria. For cases entered in the STS Database from July 2011 onward, renal failure rates reported quarterly to STS Database Participants will reflect the RIFLE criteria definition. Please note that due to the specification upgrade schedule for the STS Adult Cardiac Surgery Database, the RIFLE categories of loss and ESKD cannot be captured at this time. STS intends to make these changes during the next specification upgrade scheduled to take place in 2013. New numerator details: Definition of renal failure/dialysis requirement – Patients with acute renal failure or worsening renal function resulting in one or both of the following: - Increase of serum creatinine to ≥ 4.0 or 3x the most recent preoperative creatinine level - New requirement for dialysis postoperatively 5. Yes, re-operated patients are included 6. Approximately one FTE per 500 cases Steering Committee Follow-up: The Steering Committee agreed that the response from the developer was adequate, including that related to the fact that long term data from use of the RIFLE criteria will not be available until sometime after implementation.
1. Importance to Measure and Report: Y-22; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: Patients with post-operative renal failure are a high-risk group.
2. Scientific Acceptability of Measure Properties: C-3; P-18; M-1; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: Specifications were incomplete. There is no stated numerator time window. Without a specified time period, this becomes open to interpretation by coders. The Committee suggested the developer used the RIFLE criteria when defining renal failure. There was not an exclusion for emergency CABG cases, which are more susceptible to the development of renal failure due to pateints being sicker to begin with and the need for blood transfusions.
3. Usability: C-12; P-9; M-0; N-1 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: This measure seemed valuable from the quality improvement perspective.
4. Feasibility: C-14; P-8; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The cost of data abstraction was not clearly indicated. The developer did not provide the cost of hiring employees to perform data abstraction.
Public and Member Comments General Comments included: • level of analysis should be reported at the individual surgeon level when sample sizes are sufficient; • support for and against risk adjustment; and • requests to reconsider endorsement based on bundling of outcomes. Level of Analysis The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues. It noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement. Risk Adjustment Comments specific to the measure included concern that risk-adjusted post-operative renal failure may not be modifiable without affecting other outcomes measures and may be confusing for public reporting. Requests to Reconsider Endorsement The Steering Committee reaffirmed its endorsement of this measure for quality improvement and public reporting. Bundling

0114 Risk-adjusted post-operative renal failure
complications can add power to the ability for greater discrimination thus there is value in portraying things such as complications in this way. The reporting approach is not delineated though NQF-endorsed® guidance for reporting is included in the report titled National Voluntary Consensus Standards for Public Reporting of Patient Safety Event Information.

0115 Risk-adjusted surgical re-exploration
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percent of patients aged 18 years and older undergoing isolated CABG who require a return to the operating room for bleeding with or without tamponade, graft occlusion, valve dysfunction, or other cardiac reason. Numerator Statement: Number of patients undergoing isolated CABG who require return to the operating room 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: case-mix adjustment/No stratification is required for this measure. Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities Type of Measure: Outcome Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-19; N-0; A-1 Rationale: This is an important internal metric for cardiothoracic surgery practices to help focus supportive efforts on surgical and anesthesia providers with a high rate of required re-operation.
If applicable, Conditions/Questions for Developer: 1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities. 2. 2a.2 Numerator Time Window: Provide the time period in which cases are eligible for inclusion in the numerator. Developer Response: 1. Data on disparities are provided in the form. 2. During the hospitalization for surgery, which includes the entire postoperative period up to discharge, even if over 30 days. Steering Committee Follow-up: The Steering Committee agreed that the response from the developer was adequate.
1. Importance to Measure and Report: Y-22; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: Though it is unproven as to whether surgical re-exploration has a direct impact on outcomes; from the patient perspective, an additional surgical procedure is itself an important and adverse outcome.
2. Scientific Acceptability of Measure Properties: C-19; P-3; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: This is easy to measure accurately. The measure has face validity in that any return to the OR is considered a complication of the surgical procedure. The Committee questioned why the return to the OR was only for cardiac reasons. Evidence indicates that approximately 80 percent of the reasons for an OR return is because of bleeding or graft occulusion. The issue of risk adjustment was discussed. It was indicated that the measure should not be risk adjusted. If the measure is risk-adjusted then it is hard to find out exactly which specific conditions or procedure will lead to an OR return.
3. Usability: C-20; P-2; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The measure is meaningful for public reporting and quality improvement. Committee members discussed the potential of 'gaming' to fullfil the requirements of the measure. The Committee recognized there isn't a way to prevent gaming and trusts that gaming will not become an issue.
4. Feasibility: C-21; P-1; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: All data elements are available electronically.
Public and Member Comments General Comments included: • level of analysis should be reported at the individual surgeon level when sample sizes are sufficient; and • support for and against risk adjustment.

0115 Risk-adjusted surgical re-exploration
Level of Analysis The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues. Risk Adjustment The Committee noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement. Comments specific to the measure suggested it would be more informative to separate re-exploration for bleeding from re-exploration for other causes. The Committee determined this measure addresses surgical re-exploration as a complication of the surgical procedure and acknowledged that bleeding is one of the major causes.

0129 Risk-adjusted prolonged intubation (ventilation)
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percent of patients aged 18 years and older undergoing isolated CABG who require intubation for more than 24 hours Numerator Statement: Number of patients undergoing isolated CABG who require intubation > 24 hours. Denominator Statement: All patients undergoing isolated CABG. Exclusions: N/A Adjustment/Stratification: case-mix adjustment/No stratification is required for this measure. Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities Type of Measure: Outcome Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-15; N-4; A-1 Rationale: Intubation is linked to morbidty, and an increase in length-of-stay, cost and resource utilization. The Committee suggested in the future the developer submit a companion measure at the next maintenance review that focuses on the median time to extubation for patients with whom are intubated for less than 24 hours.
If applicable, Conditions/Questions for Developer: 1. De.2 Measure Description: Please consider change in time limit to a period that is less than 24 hours 2. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities. Developer Response: 1. Considering the increased complexity of current CT patients, a time period significantly less than 24 hrs (e.g. 6 or 12 hours) would not be appropriate as a *routine performance measure*, even though that is achievable in many patients. In some patients, such a measure could result in the adverse unintended consequences of premature extubation, subsequent ventilatory failure, and re-intubation. 2. Data on disparities are provided in the form. Steering Committee Follow-up: The Steering Committee agreed that the response from the developer was adequate though lacks some discriminatory power and suggested that in the future STS should submit a complementary measure that focuses on appropriate intubation time for patients.
1. Importance to Measure and Report: Y-22; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: Although the measure compliance is above 90 percent, the Committee felt compliance should be closer to 100 percent.
2. Scientific Acceptability of Measure Properties: C-17; P-5; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: One potential confounder is the post-CABG patient who is extubatable by clinical criteria but is kept intubated beyond 24 hours due an unrelated unscheduled second surgery the next day. The Committee questioned the developer as to why 24 hours was selected as the standard as opposed to a shorter time period. The literature identifies a range of times, associated with length of stay in

0129 Risk-adjusted prolonged intubation (ventilation)
ICU and hospital as well as relationship to anesthesia. One study reported that 39 percent of all patients were extubated within 6 hours, 89 percent within 24 hours and 95 percent within 48 hours. Committee members indicated that in their experience the majority of patients are off ventilators sooner than 24 hours..
3. Usability: C-20; P-2; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The measure is meaningful for public reporting and quality improvement.
4. Feasibility: C-20; P-1; M-1; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: Easily captured and derived from electronic sources.
Public and Member Comments General Comments included: • level of analysis should be reported at the individual surgeon level when sample sizes are sufficient; and • support for and against risk adjustment. Level of Analysis The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues. Risk Adjustment The Committee noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement.

0131 Risk-adjusted stroke/cerebrovascular accident
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percent of patients aged 18 years and older undergoing isolated CABG who have a postoperative stroke (i.e., any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that did not resolve within 24 hours Numerator Statement: Number of patients undergoing isolated CABG who have a postoperative stroke (i.e., any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that did not resolve within 24 hours. Denominator Statement: All patients undergoing isolated CABG. Exclusions: N/A Adjustment/Stratification: case-mix adjustment/No stratification is required for this measure. Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities Type of Measure: Outcome Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-20; N-1; A-0 Rationale: It is an important clinical condition to publicly report.
If applicable, Conditions/Questions for Developer: 1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities. 2. 2a.2 Numerator Time Window: Provide the time period in which cases are eligible for inclusion in the numerator. 3. 2a.9 Denominator Exclusions: Please reconsider exclusion of patients with prior CVA; suggest this exclusion be removed or rationale for retaining it be provided in more detail. Developer Response: 1. Data on disparities are provided in the form. 2. During the hospitalization for surgery, which includes the entire postoperative period up to discharge, even if over 30 days. 3. STS will remove this exclusion. STS adjusts for prior CVA in the STS risk model. Steering Committee Follow-up: The Steering Committee agreed that the response from the developer was adequate.
1. Importance to Measure and Report: Y-22; N-0

0131 Risk-adjusted stroke/cerebrovascular accident
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence) Rationale: Measuring the number of patients whose postoperative stroke was not resolved within 24 hours will provide the opportunity to improve quality of care. With 1.0 as the median, STS data shows an incidence range from 0.6 – 2.1 with 1.2 and 0.8 at the 25th and 75th quartiles respectively. Up to a 13+ percent incidence of stroke has been reported.
2. Scientific Acceptability of Measure Properties: C-12; P-10; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: This measure has significant face validity. Because it is a low-incidence event, large numbers are required for effective interpretation. The reproducibility of reporting centers from year to year is low. A center could have an excellent score one year and a bad score the following year. There was concern as to whether this truly represents the care at individual hospitals. The Committee questioned how the exclusion of a prior CVA is calculated. The Committee recommended that patients with a prior CVA should be included to see if prior CVA had worsened as a result of the CABG operation.
3. Usability: C-17; P-5; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: Useful as a measure where the data is aggregated nationally. Due to this being a low frequency event, it will be hard to directly apply the results at the provider level or in an individual practice or hospital though it can prove useful as a trigger tool.
4. Feasibility: C-18; P-4; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The Committee was not sure how well automated electronic data (such as ICD-9 codes) can be used to define this measure. Cognitive defects can be subtle, and may require more focused testing that would increase the cost of data collection and complexity of this measure.
Public and Member Comments General Comments included: • level of analysis should be reported at the individual surgeon level when sample sizes are sufficient; • support for and against risk adjustment; and • requests to reconsider endorsement based on bundling of outcomes. Level of Analysis The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues. Risk Adjustment The Committee noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement. Comments specific to the measure included concern that risk-adjusted stroke/cerebrovascular accident may not be modifiable without affecting other outcomes measures and may be confusing for public reporting. Requests to Reconsider Endorsement The Steering Committee reaffirmed its endorsement of this measure for quality improvement and public reporting. Bundling complications can add power to the ability for greater discrimination thus there is value in portraying things such as complications in this way. The reporting approach is not delineated though NQF-endorsed® guidance for reporting is included in the report titled National Voluntary Consensus Standards for Public Reporting of Patient Safety Event Information.

0119 Risk-adjusted operative mortality for CABG
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percent of patients aged 18 years and older undergoing isolated CABG who die, including both 1) all deaths occurring during the hospitalization in which the CABG was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.

0119 Risk-adjusted operative mortality for CABG

Numerator Statement: Number of patients undergoing isolated CABG who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Denominator Statement: All patients undergoing isolated CABG.
Exclusions: N/A
Adjustment/Stratification: case-mix adjustment/No stratification is required for this measure.
Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities
Type of Measure: Outcome
Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73
Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611

Steering Committee Recommendation for Endorsement: Y-19; N-1; A-0
Rationale: Mortality is an important concept to measure and report.

If applicable, Conditions/Questions for Developer:

1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities.

Developer Response:

1. Data on disparities are provided in the form.

Steering Committee Follow-up:
The Steering Committee agreed that the response from the developer was adequate.

1. Importance to Measure and Report: Y-21; N-1
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: Understanding how to prevent mortality will provide better clinical outcomes. Data from the STS database reviewed and published reports a 30 day operative death rate of 3.05% and suggests that such site specific data can be useful to evaluate care quality and focus on areas for improvement. The developer was asked to provide data regarding disparities that will be considered prior to final action by the committee.

2. Scientific Acceptability of Measure Properties: C-17; P-5; M-0; N-0
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: The Committee discussed the risk-adjusted mortality rate and if it identified whether patients who should be doing well are actually doing well within institutions. The Committee expressed interest in being able to obtain the volume of surgeries performed in an institution stratified in terms of actual risk for individual patients and whether those patients who, statistically, are expected to survive actually survive. The measure does not consider the volume of the programs.

3. Usability: C-20; P-2; M-0; N-0
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: The measure is meaningful and useful for public reporting and quality improvement.

4. Feasibility: C-20; P-2; M-0; N-0
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: The data can be derived from electronic sources.

Public and Member Comments:
General Comments included:

- level of analysis should be reported at the individual surgeon level when sample sizes are sufficient; and
- support for and against risk adjustment.

Level of Analysis
The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues.

Risk Adjustment
The Committee noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement.

0116 Anti-platelet medication at discharge

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

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. In other words, if discharge aspirin is marked contraindicated or there is an in-hospital mortality, the patient is excluded from the denominator, and therefore, the measure is calculated without those patients.
Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure.
Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities
Type of Measure: Process
Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73
Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611

Steering Committee Recommendation for Endorsement: Y-20; N-0; A-0
Rationale: Though the measure has been in use for multiple years, there is still a performance gap; provider organizations ranges from 85-100 percent.

If applicable, Conditions/Questions for Developer:

1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities.
2. 2a Measure Specifications: When are denominator exclusions with respect to calculating the numerator?
3. 2a.2 Numerator Time Window: Provide the time period in which cases are eligible for inclusion in the numerator.
4. Indicate acceptability of Plavix/clopidogrel, where applicable, throughout. The numerator statement includes anti-platelet medications; however, the denominator excludes those with an aspirin contraindication. Is a patient who is on Plavix because of an aspirin contraindication counted in the numerator or excluded from the denominator?

Developer Response:

1. Data on disparities are provided in the form.
2. If discharge aspirin is marked contraindicated or there is an in-hospital mortality, the patient is excluded from the denominator, and therefore, the measure is calculated without those patients.
3. Indicated in the measure
4. Existing numerator details state that either discharge aspirin or ADP inhibitors are acceptable. 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 (i.e., Number of isolated CABG procedures in which discharge aspirin [DCASA] or discharge ADP inhibitors [DCADP] is marked "yes").

Steering Committee Follow-up:
The Steering Committee agreed that the response from the developer was adequate.

1. Importance to Measure and Report: Y-21; N-0
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: The use of anti-platelet therapy at discharge is currently an accepted standard of care to improve bypass graft patency and promote secondary prevention of coronary artery disease and performance gap remains.

2. Scientific Acceptability of Measure Properties: C-18; P-3; M-0; N-0
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: The Committee was uncertain as to when exclusions were applied. The Committee questioned if Plavix was an acceptable alternative if aspirin is contraindicated.

3. Usability: C-21; P-0; M-0; N-0
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: The measure is currently widely used both as a CMS PQRI measure (measure 169) and at hospitals that are participating in the STS Adult Cardiac Surgery Database providing information that providers can use to analyze and improve anti-platelet use practices.

4. Feasibility: C-20; P-1; M-0; N-0
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: The measure can be easily implemented.

Public and Member Comments
General Comments included:

0116 Anti-platelet medication at discharge

- level of analysis should be reported at the individual surgeon level when sample sizes are sufficient.

The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues. It noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement.

0118 Anti-lipid treatment discharge

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on a statin or other lipid-lowering regimen.
Numerator Statement: Number of patients undergoing isolated CABG who were discharged on a statin or other lipid-lowering regimen.
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 necessary/No stratification is required for this measure.
Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities
Type of Measure: Process
Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73
Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611

Steering Committee Recommendation for Endorsement: Y-20; N-0; A-0
Rationale: Although the current compliance rate is 98 percent, there is still regional variation where performance is low.

If applicable, Conditions/Questions for Developer:

1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities.

Developer Response:

1. Data on disparities are provided in the form.

Steering Committee Follow-up:
The Steering Committee agreed that the response from the developer was adequate.

1. Importance to Measure and Report: Y-21; N-0
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: Strong clinical evidence indicates that a lipid-lowering regime is of benefit to patients post-CABG.

2. Scientific Acceptability of Measure Properties: C-20; P-1; M-0; N-0
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: Specifications are well defined. Reliability and validity testing results are reported with rates of p=0.76 and 96.5% agreement respectively.

3. Usability: C-20; P-0; M-1; N-0
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: The Committee would like to see an increase in utilization of the measure and eventually become a standard practice of care.

4. Feasibility: C-21; P-0; M-0; N-0
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: The measure can be easily implemented.

Public and Member Comments
General Comments included:

- level of analysis should be reported at the individual surgeon level when sample sizes are sufficient.

The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues. It noted that it was important for measures to take into account patient risk factors while ensuring that variations in

0118 Anti-lipid treatment discharge
care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement.

0130 Risk-adjusted deep sternal wound infection rate
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percent of patients aged 18 years and older undergoing isolated CABG who, within 30 days postoperatively, develop deep sternal wound infection involving muscle, bone, and/or mediastinum requiring operative intervention. Numerator Statement: Number of patients who, within 30 days postoperatively, develop deep sternal wound infection involving muscle, bone, and/or mediastinum requiring operative intervention. Must have all of the following conditions: - Wound opened with excision of tissue (I&D) or re-exploration of mediastinum - Positive culture unless patient on antibiotics at time of culture or no culture obtained - Treatment with antibiotics beyond perioperative prophylaxis Denominator Statement: All patients undergoing isolated CABG Exclusions: N/A Adjustment/Stratification: case-mix adjustment/No stratification is required for this measure Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities Type of Measure: Outcome Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-19; N-0; A-1 Rationale: There is an opportunity for improvement due to the presence of variation within the performance gap.
If applicable, Conditions/Questions for Developer: 1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities. Developer Response: 1. Data on disparities are provided in the form. Steering Committee Follow-up: The Steering Committee agreed that the response from the developer was adequate.
1. Importance to Measure and Report: Y-21; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: There is significant morbidity and mortality associated with this condition.
2. Scientific Acceptability of Measure Properties: C-20; P-1; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The measure is important based on surgical wound infection as an important indicator of performance; the specifications are clearly and fully defined. The 30 day time interval for occurrence of sternal wound infection is appropriate.
3. Usability: C-19; P-2; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: STS reports it has worked to harmonize its definition of surgical site infection with CDC's definition and has done so except with respect to the time interval. At present, STS believes the 30 day time interval for the measure vs. the CDC 12 months outer limit is most appropriate.
4. Feasibility: C-19; P-2; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The measure can be easily implemented.
Public and Member Comments General Comments included: • level of analysis should be reported at the individual surgeon level when sample sizes are sufficient; • support for and against risk adjustment; and • request for transparency of the validation methodology. Level of Analysis The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as

0130 Risk-adjusted deep sternal wound infection rate
organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues. Risk Adjustment The Committee noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement. Request for Transparency The Steering Committee agreed that transparency is important for all users' proper use and understanding of the measure and results of its use.

0134 Use of internal mammary artery (IMA) in coronary artery bypass graft (CABG)
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of patients aged 18 years and older undergoing isolated coronary artery bypass graft (CABG) who received an internal mammary artery (IMA) graft. Numerator Statement: Number of patients undergoing isolated coronary artery bypass graft (CABG) who received an internal mammary artery (IMA) graft. Denominator Statement: All patients undergoing isolated CABG. Exclusions: Cases are removed from the denominator if the patient had a previous CABG prior to the current admission or if IMA was not used and one of the following reasons was provided: - Subclavian stenosis - Previous cardiac or thoracic surgery - Previous mediastinal radiation - Emergent or salvage procedure - No LAD disease Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Clinicians: Group, Clinician: Individual, Clinician: Team, Facility/Agency, Population: National, regional/network, states, counties or cities Type of Measure: Process Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-20; N-0; A-2 Rationale: This measure is tied to improved outcomes due to high patency rates of the IMA. The current compliance mean is 95 percent; however variation among programs exists; i.e., compliance rates as low as 80 percent.
If applicable, Conditions/Questions for Developer: 1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities. 2. 2a.9 Denominator Exclusions: Please remove "the IMA is not a suitable conduit due to size or flow" from the exclusions. Developer Response: 1. Data on disparities are provided in the form. 2. STS staff agreed to remove the exclusion related to IMA suitability during the Steering Committee meeting. The form was modified to reflect this. Steering Committee Follow-up: The Steering Committee agreed that the response from the developer was adequate. Additional Conditions/Questions for Developer: Harmonization: As agreed, 0134 and 0516 should be harmonized by combining into a single measure, which can allow reporting at the provider or institution level.
1. Importance to Measure and Report: Y-20; N-1 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The literature points to disparities amongst women, with IMA used less often in women. The developer did not provide information or data on disparities related to performance on the measure.
2. Scientific Acceptability of Measure Properties: C-14; P-7; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f.*

0134 Use of internal mammary artery (IMA) in coronary artery bypass graft (CABG)
Meaningful differences; 2g. Comparability; 2h. Disparities) Rationale: The exclusion 'IMA not suitable,' can lead to the issue of gaming. This causes apprehension as to who determines if the IMA is not suitable, since currently, there are no criteria that classifies the IMA as suitable. The Committee requested that this exclusion be removed.
3. Usability: C-20; P-1; M-0; N-0 (3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures) Rationale: The information obtained is meaningful and useful.
4. Feasibility: C-20; P-1; M-0; N-0 (4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented) Rationale: The information can be derived from electronic sources.
Public and Member Comments It was suggested the measure retain endorsement and be placed in reserve status. The Committee concluded that no additional information was provided to revise evaluation of the measures and recommendations were not changed.

Endorsed Measure and Placed into Reserve Status:

0113 Participation in a systematic database for cardiac surgery
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Participation in a clinical database with broad state, regional, or national representation, that provides regular performance reports based on benchmarked data. Numerator Statement: Does the facility participate in a clinical database with broad state, regional, or national representation, that provides regular performance reports based on benchmarked data? (y/n). Denominator Statement: N/A Exclusions: N/A Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities Type of Measure: Structure/management Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Reserve Status Y-20; N-0; A-1 Rationale: Participation in a registry allows benchmarking of data and leads to quality improvement. At present, 95 percent of eligible institutions participate in the registry; this number has remained at a high level over time. Additionally, the data drawn from the registry is used to report quality performance of the institutions for a number of process and outcome measures. Consideration of related measures 0456, Participation in a systematic national database for general thoracic surgery and 0493, Participation by a hospital, physican or other clinician in systematic clinical database registry that includes consensus endorsed quality measures was overtaken by the recommendation for reserve status.
If applicable, Conditions/Questions for Developer: 1. De.2 Measure Description: Please provide a more detailed description that addresses requirement for participation in the STS database/registry. 2. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities. 3. 2a.1 Numerator Statement: The statement does not indicate participation in the STS database is required. 4. 2a.3 Numerator Details: Are hospitals required to report 100% of cases? Please define what qualifies as participation in the registry. Developer Response: 1. Participation in the STS Database is not required. Measure description will read: Participation in a clinical database with broad state, regional, or national representation, that provides regular performance reports based on benchmarked data 2. STS is not sure how to provide disparities data on this measure. If NQF is interested, STS can provide the number of STS Participants who report data on at least one patient in each subgroup (e.g., male, female, white, etc), but this information would look very similar to the data already provided in the measure form 3. Participation in the STS Database is not required. Numerator statement has been modified to read: Whether or not the facility participates in a clinical database with broad state, regional, or national representation, that provides regular performance

0113 Participation in a systematic database for cardiac surgery
reports based on benchmarked data. 4. Numerator Details: Participation in a clinical database with broad state, regional, or national representation, that provides regular performance reports based on benchmarked data. For example, as described in the measure form, participation in the STS Adult Cardiac Surgery Database is initiated by the surgeons and/or hospital and is defined as quarterly submission of 100% of cases via an approved software system to the Duke Clinical Research Institute. STS's audit cross-checks submitted cases against hospital logs to assure all cases have been captured. Steering Committee Follow-up: The Steering Committee agreed that the response from the developer was adequate. The Steering Committee stated the revised description supported the importance of broad database registries, while appropriately avoiding endorsement of a specific vendor. The summary of data disparities was not provided, but it was suggested that the developer could provide additional information regarding characteristics of organizations that participate in the registry and whether the organizations that did not participate had any commonalities.
1. Importance to Measure and Report: Y-18; N-4 (1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence) Rationale: Participation in the database for benchmarking and quality improvement has been shown to improve outcomes and enhance patient safety. Although 90 pecent of centers already report, the Committee felt that participation should be closer to 100 percent.
2. Scientific Acceptability of Measure Properties: C-4; P-15; M-1; N-2 (2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities) Rationale: Participation in the registry was not defined. The Committee questioned if submitting one case fullfil the criteria requirement or is an organization required to submitt 100 percent of their cases in order to meet the requirement.
3. Usability: C-9; P-13; M-0; N-0 (3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures) Rationale: The Committee questioned if the measure remains useful with the addition of other indicators that are dependent upon participation.
4. Feasibility: C-17; P-5; M-0; N-0 (4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented) Rationale: All data elements are available electronically.
Public and Member Comments Comments included: • support for "reserve status"; and • question about whether the measure meets the NQF criterion of Importance to Measure and Report because it has a performance level of 95% for participating institutions and lack of convincing evidence of a strong link between participating in a clinical registry and quality of care. Meet the NQF Criterion of Importance to Measure and Report The Steering Committee noted that registries continue to provide a way to collect, benchmark, and report back to participants to facilitate appreciation of levels of performance and potential for improvement. To address the situation where reliable, valid and important measures have high levels of performance with little variability, NQF offers "inactive endorsement with reserve status" to retain endorsement so that performance could be monitored in the future to ensure that performance does not decline. The Committee affirmed its recommendation that this measure be placed in reserve status.

CARDIAC-CABG: PROPHYLAXIS

Endorsed Measure:

0300 Cardiac surgery patients with controlled postoperative blood glucose
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Cardiac surgery patients with controlled blood glucose (≤180 mg/dl) in the timeframe of 18 to 24 hours after Anesthesia End Time.

0300 Cardiac surgery patients with controlled postoperative blood glucose

Numerator Statement: Cardiac surgery patients with controlled postoperative blood glucose (≤180 mg/dl) in the timeframe of 18 to 24 hours after Anesthesia End Time.

Denominator Statement: Cardiac surgery patients with no evidence of prior infection. Include patients with an ICD-9-CM Principle Procedure code or ICD-9-CM Other Procedure codes of selected surgeries AND an ICD-9-CM for ICD-9-CM codes Principle Procedure code or ICD-9-CM Other Procedure codes of selected surgeries.

Exclusions: Excluded Populations:

- Patients less than 18 years of age
- Patients who have a length of Stay greater than 120 days
- Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in Appendix A, Table 5.09 for ICD-9-CM codes)
- Burn and transplant patients (as defined in Appendix A, Tables 5.14 and 5.15 for ICD-9-CM codes)
- Patients enrolled in clinical trials
- Patients whose ICD-9-CM principal procedure occurred prior to the date of admission
- Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure of interest
- Patients who discharged prior to 24 hours after Anesthesia End Time.

Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure.

Level of Analysis: Facility; Population: National, Population: Regional

Type of Measure: Process

Data Source: Electronic administrative data/claims; paper medical record/flow-sheet. Vendor tools or CART. CART is available for download free at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093

Measure Steward: Centers for Medicare & Medicaid Services | 7500 Security Boulevard | Baltimore | Maryland | 21244

Steering Committee Recommendation for Endorsement: Y-20; N-0; A-2

Rationale: Subsequent to the developer changing the timeframe from 6 am due to variation in time of surgery, the Committee indicated that a more comprehensive measure would involve monitoring a patient's blood glucose over the 18-24 hour period after surgery and allowing a 4 hour window to reduce high glucose levels to ≤ 180mg/dl. This suggestion led to the developers revising the measure to include the timeframe of 18 to 24 hours.

If applicable, Conditions/Questions for Developer:

1. 2a.1 Numerator Statement: The timeframe should be within 24 hours after surgery instead of 6 am.
2. 2a.10 Denominator Exclusion Details: Provide a more detailed definition of perioperative death.

Developer Response:

1. This recommendation was presented to the SCIP Infection TEP on April 6, 2011. The panel accepted changing the measure numerator to patients having cardiac surgery whose highest blood sugar, between 18 and 24 hours after surgery is 180mg/dl or less.
2. Patients that expire during the perioperative period are excluded from this measure, as they should not be held accountable for glucose values on POD 1 or 2. The data element has this definition: The patient expired during the timeframe from surgical incision through discharge from the post anesthesia care/recovery area. Additional abstraction instructions include:
   For patients discharged from surgery and admitted to the PACU: The end of the perioperative period occurs when the patient is discharged from the PACU.
   For patients discharged from surgery and admitted to locations other than the PACU (e.g., ICU): The perioperative period would end a maximum of six hours after arrival to the recovery area.

If applicable, Conditions/Questions for Developer:

1. 2a.1 Numerator Statement: Suggested modification-If serum glucose is above 180 mg/dl, was it decreased within a specific amount of time.
2. 2b Reliability Testing and 2c Validity Testing: Advise what additional testing will need to be completed in light of the suggested modification.

Steering Committee Follow-up:

The Steering Committee agreed that the response from the developer regarding POD was adequate.

1. Importance to Measure and Report: Y-16; N-5

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: The goal of the measure, to improve patient's blood sugar, is important. Performance at the aggregate is 93.4 percent; disparity information to understand if there are subpopulations disparities was requested and obtained.

2. Scientific Acceptability of Measure Properties: C-2; P-12; M-7; N-0

0300 Cardiac surgery patients with controlled postoperative blood glucose
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities) Rationale: There is a need for more flexibility in the timeframe to allow comparability since variation in patient times of departure from the operating room. Both the committee and developer have heard anecdotal reports that clinical staffs are leaving patients on insulin drips to meet the criteria of the measure. Assuming this to be accurate, the timeframe change will address such an unintended consequence of the measure.
3. Usability: C-5; P-6; M-10; N-0 (3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures) Rationale: The Committee was unsure if this measure would provide additive value if the timeframe remained at 6 am.
4. Feasibility: C-5; P-9; M-7; N-0 (4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented) Rationale: The measure cannot be easily implemented using the current timeframe. The timeframe has been changed.
Public and Member Comments • Do not support glucose control as a performance measure at this time; • Prefer glucose range be included in the measure to avoid hypo-or hyper-glycemia; and • Concerned with how measure considers hospital non-compliance Glucose Range The measure developer indicated that they will discuss including a glucose range (to avoid hypo- or hyper- glycemia) in the measure with their Technical Expert Panel. The Committee will review the response from CMS' Technical Expert Panel and discuss it with CMS to determine a future appropriate action. Hospital Non-Compliance The developer indicated that the measure does not require that all blood sugars between 18-24 hours after the end of cardiac surgery be below 180 mg/dL.

CARDIAC-CABG: VALVE REPLACEMENT/REPAIR

Endorsed Measures:

0120 Risk-adjusted operative mortality for aortic valve replacement (AVR)
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
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 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 aged 18 years and older undergoing isolated AVR surgery. Exclusions: N/A. Adjustment/Stratification: case-mix adjustment/No stratification is required for this measure. Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities Type of Measure: Outcome Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-19; N-1; A-0 Rationale: Aortic valve replacement is a high risk surgery and factors that can improve outcomes can be studied from this measure.
If applicable, Conditions/Questions for Developer: 1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities. Developer Response:

0120 Risk-adjusted operative mortality for aortic valve replacement (AVR)

1. Data on disparities are provided in the form.

Steering Committee Follow-up:
The Steering Committee agreed that the response from the developer was adequate.

1. Importance to Measure and Report: Y-20; N-0
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: Important measure for determining the delivery of care in a cardiac program. The summary of evidence of high impact is strong.

2. Scientific Acceptability of Measure Properties: C-20; P-1; M-0; N-0
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: Specifications are well defined and the risk adjustment methodology is appropriate and clearly described.

3. Usability: C-20; P-1; M-0; N-0
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: The measure is straightforward and easy to understand. It is focused on one, clearly defined procedure, and the outcome (mortality) is determined by multiple contributing factors that when identified can be targets of quality improvement initiatives. This measure is currently not being publicly reported; reporting is expected within 12 months.

4. Feasibility: C-21; P-0; M-0; N-0
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: The data capture process for the database is extensive and well constructed.

Public and Member Comments
General Comments included:

- level of analysis should be reported at the individual surgeon level when sample sizes are sufficient; and
- support for and against risk adjustment.

Level of Analysis
The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues.

Risk Adjustment
The Committee noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement.

Comments specific to the measure included a request that age specification be included in the measure description and denominator statements. The Steering Committee supported the change and the measure developer agreed to modify the measure descriptions and denominator statements to include age specifications.

0121 Risk-adjusted operative mortality for mitral valve (MV) replacement

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

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 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.
Denominator Statement: All patients aged 18 years and older undergoing isolated MV replacement surgery.
Exclusions: N/A
Adjustment/Stratification: case-mix adjustment/No stratification is required for this measure.
Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities
Type of Measure: Outcome

0121 Risk-adjusted operative mortality for mitral valve (MV) replacement
Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-19; N-1; A-0 Rationale: The measure was well defined and constructed providing ability to drill down for information regarding in hospital and post discharge deaths. Having such data at the levels of analysis can help planning toward strategies to prevent mortality and ultimately provide better clinical outcomes.
If applicable, Conditions/Questions for Developer: 1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities. Developer Response: 1. Data on disparities are provided in the form. Steering Committee Follow-up: The Steering Committee agreed that the response from the developer was adequate.
1. Importance to Measure and Report: Y-21; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The procedure is important to measure and report. Having the ability to review organizational performance against that of peers and against oneself over time has been shown to facilitate insights that can result in improvement in risk assessment, patient selection and ultimately outcomes.
2. Scientific Acceptability of Measure Properties: C-20; P-1; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The specifications are well defined.
3. Usability: C-21; P-0; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The measure is straightforward and easy to understand. This measure is currently not being publicly reported; reporting is expected within 12 months.
4. Feasibility: C-21; P-0; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The data is derived from electronic sources.
Public and Member Comments General Comments included: • level of analysis should be reported at the individual surgeon level when sample sizes are sufficient; and, • support for and against risk adjustment. Level of Analysis The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues. Risk Adjustment The Committee noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement. The Steering Committee supported changes to the measure descriptions and denominator statements that were requested. Comments specific to the measure included a request that age specification be included in the measure description and denominator statements. The Steering Committee supported the change and the measure developer agreed to modify the measure descriptions and denominator statements to include age specifications.

0122 Risk-adjusted operative mortality MV replacement + CABG surgery
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percent of patients aged 18 years and older undergoing combined MV replacement and CABG who die, including both 1)

0122 Risk-adjusted operative mortality MV replacement + CABG surgery
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 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. Denominator Statement: All patients aged 18 years and older undergoing combined MV replacement + CABG. Exclusions: N/A Adjustment/Stratification: case-mix adjustment/No stratification is required for this measure. Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities Type of Measure: Outcome Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-19; N-1; A-0 Rationale: Signifcant procedure in cardiac surgery.
If applicable, Conditions/Questions for Developer: 1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities. Developer Response: 1. Data on disparities are provided in the form. Steering Committee Follow-up: The Steering Committee agreed that the response from the developer was adequate.
1. Importance to Measure and Report: Y-19; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: Important measure for the relatively small number of centers that perform this type of surgery given the increasing use in an older population with greater numbers and more severe co-morbid risk factors.
2. Scientific Acceptability of Measure Properties: C-16; P-3; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The measure is precisely specified.
3. Usability: C-16; P-3; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The question of whether the measure is useful due to the small number of centers that perform the surgery was discussed and decided in favor of the measure's use. This measure is currently not being publicly reported; reporting is expected within 12 months.
4. Feasibility: C-18; P-1; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: Audit process is well structured.
Public and Member Comments General Comments included: • level of analysis should be reported at the individual surgeon level when sample sizes are sufficient; and • support for and against risk adjustment. Level of Analysis The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues. Risk Adjustment The Committee noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement. The Steering Committee supported changes to the measure descriptions and denominator statements that were requested.

0122 Risk-adjusted operative mortality MV replacement + CABG surgery
Comments specific to the measure included a request that age specification be included in the measure description and denominator statements. The Steering Committee supported the change and the measure developer agreed to modify the measure descriptions and denominator statements to include age specifications.

0123 Risk-adjusted operative mortality for aortic valve replacement (AVR) + CABG surgery
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
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 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. Denominator Statement: All patients aged 18 years and older undergoing combined AVR + CABG. Exclusions: N/A Adjustment/Stratification: case-mix adjustment/No stratification is required for this measure. Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities Type of Measure: Outcome Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-19; N-1; A-0 Rationale: The performance gap varies by facility.
If applicable, Conditions/Questions for Developer: 1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities. Developer Response: 1. Data on disparities are provided in the form. Steering Committee Follow-up: The Steering Committee agreed that the response from the developer was adequate.
1. Importance to Measure and Report: Y-20; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: It is a critical outcome that varies in performance.
2. Scientific Acceptability of Measure Properties: C-18; P-2; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: A higher risk population is undergoing this surgery; the case mix risk model is appropriate for the population. The reliability and validity testing will allow organizations to provide consistent and credible results
3. Usability: C-19; P-2; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: This measure is currently not being publicly reported; strategy for reporting puts CABG procedures out first with other to follow. This and related measures are expected to be publicly reported within 24-36 months.
4. Feasibility: C-21; P-0; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The information can be derived from electronic sources.
Public and Member Comments General Comments included: • level of analysis should be reported at the individual surgeon level when sample sizes are sufficient; and • support for and against risk adjustment. Level of Analysis The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues.

0123 Risk-adjusted operative mortality for aortic valve replacement (AVR) + CABG surgery
Risk Adjustment The Committee noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement. The Steering Committee supported changes to the measure descriptions and denominator statements that were requested. Comments specific to the measure included a request that age specification be included in the measure description and denominator statements. The Steering Committee supported the change and the measure developer agreed to modify the measure descriptions and denominator statements to include age specifications.

1501 Risk-adjusted operative mortality for mitral valve (MV) repair
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
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) *Note: This measure was formerly endorsed as a component of Measure 0121* Numerator Statement: Number of patients 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. Denominator Statement: All patients aged 18 years and older undergoing isolated MV Repair surgery (This measure applies to the procedure of MV repair, regardless of approach) Exclusions: N/A Adjustment/Stratification: case-mix adjustment/No stratification is required for this measure. Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities Type of Measure: Outcome Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-21; N-0; A-0 Rationale: The measure provides an additive value to measures on cardiac surgical care.
If applicable, Conditions/Questions for Developer: 1. De.2 Measure Description & 2a.4 Denominator Statement: Please clarify that the measure applies to open chest procedures. 2. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities. Developer Response: 1. The measure applies to the procedure of MV repair, regardless of approach. 2. Data on disparities are provided in the form. Steering Committee Follow-up: The Steering Committee agreed that the response from the developer was adequate.
1. Importance to Measure and Report: Y-21; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: This procedure is important to measure and report.
2. Scientific Acceptability of Measure Properties: C-19; P-2; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The measure is precisely specified.
3. Usability: C-19; P-2; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The measure is easy to understand.
4. Feasibility: C-21; P-0; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: Easily measured and derived from electronic sources.

1501 Risk-adjusted operative mortality for mitral valve (MV) repair

Public and Member Comments

General Comments included:

- level of analysis should be reported at the individual surgeon level when sample sizes are sufficient; and
- support for and against risk adjustment.

Level of Analysis

The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues.

Risk Adjustment

The Committee noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement. The Steering Committee supported changes to the measure descriptions and denominator statements that were requested.

Comments specific to the measure included a request that age specification be included in the measure description and denominator statements. The Steering Committee supported the change and the measure developer agreed to modify the measure descriptions and denominator statements to include age specifications.

1502 Risk-adjusted operative mortality for MV repair + CABG surgery

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

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. *Note: This measure was formerly endorsed as a component of Measure 0122.*

Numerator Statement: Number of patients 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.

Denominator Statement: All patients aged 18 years and older undergoing combined MV repair + CABG

Exclusions: N/A

Adjustment/Stratification: case-mix adjustment/No stratification is required for this measure.

Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities

Type of Measure: Outcome

Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73

Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611

Steering Committee Recommendation for Endorsement: Y-21; N-0; A-0

Rationale: Important measure with variation of performance.

If applicable, Conditions/Questions for Developer:

1. 1b.4 Summary of Data on Disparities by Population Group: Please provide data on disparities.

Developer Response:

1. Data on disparities are provided in the form.

Steering Committee Follow-up:

The Steering Committee agreed that the response from the developer was adequate.

1. Importance to Measure and Report: Y-21: N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: Mortality varies for this procedure.

2. Scientific Acceptability of Measure Properties: C-16; P-4; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale: The measure is precisely specified.

3. Usability: C-20; P-1; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing

1502 Risk-adjusted operative mortality for MV repair + CABG surgery
measures) Rationale: The measure is easy to understand.
4. Feasibility: C-21; P-0; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: Easily measured and derived from electronic sources.
Public and Member Comments Comments included: • level of analysis should be reported at the individual surgeon level when sample sizes are sufficient; and • support for and against risk adjustment. Level of Analysis The Steering Committee discussed the level of analysis and was sensitive to a number of issues that should be considered as organizations determine how measures should be structured and reported, including small sample sizes and potential for risk aversion. The Steering Committee stated it was appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues. Risk Adjustment The Committee noted that it was important for measures to take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. It also clarified with the developer that individual clinician information can be generated at the group or hospital level for use in quality improvement. The Steering Committee supported changes to the measure descriptions and denominator statements that were requested. Comments specific to the measure included a request that age specification be included in the measure description and denominator statements. The Steering Committee supported the change and the measure developer agreed to modify the measure descriptions and denominator statements to include age specifications.

Measures not Recommended for Endorsement:

0124 Surgical volume-a. isolated coronary artery bypass graft (CABG) surgery, b. valve surgery, c. CABG+valve surgery
For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Annual procedural volume of three surgeries: isolated CABG surgery, valve surgery, and valve+CABG surgery. Numerator Statement: a. number of patients undergoing isolated CABG surgery b. number of patients undergoing heart valve surgery c. number of patients undergoing CABG+valve surgery. Denominator Statement: N/A Exclusions: N/A Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Clinicians: Group; Facility/Agency; Population: National, regional/network, states, counties or cities Type of Measure: Structure/management Data Source: Registry data-STS Adult Cardiac Surgery Database, Version 2.73 Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: No Rationale: Did not pass Importance to Measure and Report
If applicable, Conditions/Questions for Developer: Developer Response: If applicable, Questions to the Steering Committee:
1. Importance to Measure and Report: Y-4; N-17 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: Volume alone is not an adequate quality marker. This measure should be paired with a companion outcome measure or it should be used to stratify volume but it should not be used as a stand-alone measure.
2. Scientific Acceptability of Measure Properties: *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)*

0124 Surgical volume-a. isolated coronary artery bypass graft (CABG) surgery, b. valve surgery, c. CABG+valve surgery
Rationale:
3. Usability: *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale:
4. Feasibility: *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale:
Public and Member Comments Numerous comments were received asking the Committee to reconsider its decision to not recommend measure 0124 for NQF endorsement. Commenters believe volume is linked to providing a higher quality of care and patient outcomes. The Committee, as well as the developer, noted that there is not a strong volume/outcome relationship for CABG and maintained its recommendation.

1479 Patient(s) 18 years of age and older on lipid-lowering medication at admission or within seven days of discharge of an isolated CABG procedure
For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Patient(s) 18 years of age and older hospitalized for an isolated CABG procedure taking a lipid-lowering medication at admission or within seven days of discharge. Numerator Statement: Patient(s) who are taking a lipid-lowering medication at CABG admission date or within seven days of discharge. Denominator Statement: People hospitalized for an isolated CABG procedure. Exclusions: 1. Exclude patients who were readmitted to an acute or non-acute care facility for any diagnosis within seven days after discharge 2. Exclude the event if the patient died during the admission 3. Exclude the event if the patient did not have pharmacy benefits throughout the CABG event. 4. Exclude the event if the patient had a contraindication for anti-lipid therapy. Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure.None Level of Analysis: Facility/ Agency, Health Plan, Integrated Delivery System, Multi-site/ corporate chain, Can be measured at all levels, Clinicians: Individual, Group, Population: states, counties or cities, Disease Management, Program: QIO . Type of Measure: Process Data Source: Electronic administrative data/claims; pharmacy data Measure Steward: Ingenix | 12125 Technology Drive | Eden Prairie | Minnesota | 55344
Steering Committee Recommendation for Endorsement: Y-1; N-19; A-1 Rationale: The goal of the measure is laudable as it begins to view the issue of patient compliance and medication reconciliation. However, the measure, as constructed, will not achieve the goal. The actual outcome of the measure is unclear. This measure has the potential for socioeconomic bias because patients without pharmacy benefits are excluded from the measure.
If applicable, Conditions/Questions for Developer: Developer Response: If applicable, Questions to the Steering Committee:
1. Importance to Measure and Report: Y-12; N-9 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: Strong clinical evidence indicates that a lipid-lowering regime is of benefit to patients post-CABG.
2. Scientific Acceptability of Measure Properties: C-1; P-7; M-12; N-1 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The Committee inquired about the percentage of patients over the age of 65 years old that were captured in this measure. The issue of attribution and accountability was discussed. It was not clear if the hospital or physicians are being held accountable if patients elect not to fill their prescriptions. This measure does not allow organizations to accurately capture data on disparities because patients without a pharmacy benefit are excluded from the measure.
3. Usability: C-3; P-6; M-9; N-3 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing*

1479 Patient(s) 18 years of age and older on lipid-lowering medication at admission or within seven days of discharge of an isolated CABG procedure
measures) Rationale: The developer is unsure if the measure is being publicly reported.
4. Feasibility: C-5; P-8; M-7; N-1 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The developer was unable to provide information on costs to implement the measure. Data is abstracted using claims and chart abstraction data.
Public and Member Comments No comments were received on this measure.

CARDIAC, APPENDECTOMY and PANCREATIC RESECTION

Endorsed Measures:

0127 Preoperative beta blockade
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percent of patients aged 18 years and older undergoing isolated CABG who received beta blockers within 24 hours preceding surgery. Numerator Statement: Number of patients undergoing isolated CABG who received beta blockers within 24 hours preceding surgery Denominator Statement: All patients undergoing isolated CABG Exclusions: Cases are removed from the denominator if preoperative beta blocker was contraindicated. Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Clinicians: Group, Clinicians: Individual, Facility/ Agency, Population: Community, Population: Counties or cities, Population: National, Population: Regional/ network, Population: States Type of Measure: Process Data Source: Registry data Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-23; N-0; A-1 Rationale: There was strong evidence to support this measure and it demonstrated a clear performance gap.
If applicable, Conditions/Questions for Developer: Developer Response: Steering Committee Follow-Up: This was one of four related measures considered for potential harmonization. The four included: e*ndorsed measure 0235*: Pre-op beta blocker in patient with isolated CABG; m*aintenance measure 0127*: Pre-operative beta blockade; e*ndorsed measure 0236*: Pre-op beta blocker in patient with isolated CABG; and m*aintenance measure 0284*: Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period. Discussion of the four measures is included here. The Steering Committee stated that measure 0284 is unique and harmonization will not be pursued at this time since it applies beyond CABG to other surgical patients receiving beta blocker therapy prior to admission. The Steering Committee identified measures 0235 and 0127 as similar and should be combined into a single measure. The measure developer confirmed that the measures are similar with the exception of the level of measurement and indicated that they would combine them into a single measure from which information at the individual or facility level can be drawn. The developer also noted that measures 0235 and 0236 are identical in their specifications and are two components of a Physician Quality Reporting System (PQRS) measure. The Steering Committee stated that they considered the measures derived from registry data (measures 0235 and 0127) and administrative claims data (measure 0236) to be similar but not competing since the two data sources result in capture of information about different populations; both measures are useful and valid. On the September 13 conference call, the measure developer confirmed that measures 0127 and 0235 had been combined into this single measure that includes a level of analysis for both facilities and individual clinicians.
1. Importance to Measure and Report: Y-21, N-0; A-0 (1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence) Rationale: There was strong evidence to support this measure and it demonstrated a performance gap of 86.6 percent.
2. Scientific Acceptability of Measure Properties: C-16; P-5; M-0; N-0

0127 Preoperative beta blockade
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities) Rationale: Questions regarding number of patients excluded by the measure and concerns over contraindications to preoperative beta blockers were satisfactorily addressed by additional information from the developer. Evidence in support of the measure demonstrates its value.
3. Usability: C-17; P-4; M-0; N-0 (3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures) Rationale: The measure as specified is usable; there may be opportunities for harmonization with other beta blocker measures. At the request of the Committee, the developer combined measures 0127 and 0235 into a single measure.
4. Feasibility: C-17; P-4; M-0; N-0 (4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/unintended consequences identified 4e. Data collection strategy can be implemented) Rationale: The measure is meaningful for public reporting and quality improvement; though, the cost of data extraction is of some concern.
Public and Member Comments Commenters suggested that it be used as a composite with 0126. The developer stated that the denominator of measure 0127 differs from the denominator of 0126. The Committee did not change its recommendation but noted that endorsement as an individual measure does not preclude use in a composite.

0284 Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period. To be in the denominator, the patient must be on a beta-blocker prior to arrival. The case is excluded if the patient is not on a beta-blocker prior to arrival, as described below in 2a4. Numerator Statement: Surgery patients on beta blocker therapy prior to admission who receive a beta blocker during the perioperative period Denominator Statement: All surgery patients on beta blocker therapy prior to arrival Data Element Data Collection Question: Is there documentation that the patient was on a daily beta-blocker therapy prior to arrival? Yes/No Notes for Abstraction: • If there is documentation that the beta-blocker was taken daily at “home” or is a “current” medication, select “Yes”. • If a beta-blocker is listed as a home medication without designation of how often or when it is taken, select “Yes”. • If there is documentation that the beta-blocker is a home/current medication and additional documentation indicates the beta-blocker was not taken daily, e.g., the medication reconciliation form lists a beta-blocker as a home/current medication, but documentation in the nurses notes state “patient denies taking beta-blocker every day", select “No”. • If there is documentation that the beta-blocker is on a schedule other than daily, select “No”. • If there is documentation that the beta-blocker was given on a “prn” basis for cardiac or non-cardiac reasons, select “No”. Exclusions: • Patients less than 18 years of age • Patients who have a Length of Stay greater than 120 days • Patients enrolled in clinical trials • Patients whose ICD-9-CM principal procedure occurred prior to the date of admission • Patients who expired during the perioperative period • Pregnant patients taking a beta-blocker prior to arrival • Patients with a documented Reason for Not Administering Beta-Blocker-Perioperative • Patients with Ventricular Assist Devices or Heart Transplantation Adjustment/Stratification: No risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Facility/ Agency, Population: National, Population: Regional Type of Measure: Process Data Source: Electronic administrative data/ claims, Paper medical record/ flow-sheet Vendor tools (electronic) or CART. CART is available for download free at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093

0284 Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period

Measure Steward: Centers for Medicare & Medicaid Services | 7500 Security Blvd, Mail Stop S3-02-01 | Baltimore | Maryland | 21244

Steering Committee Recommendation for Endorsement: Y-20; N-0; A-1

Rationale: The measure is meaningful for public reporting and quality improvement.

If applicable, Conditions/Questions for Developer:

1. 2a.4 Denominator Statement: Include definition of 'prior to arrival' and clarify the expected beta blocker dosing during the perioperative period (e.g., beyond homeopathic dose) – should be done to a specific parameter; i.e., hear rate or blood pressure.
2. 2a.9 Denominator Exclusions: Exclusion for laparoscopy verbally reported as removed effective January 1, 2012. Please confirm.
3. 2a.9 Denominator Exclusions: Consider exclusions for patients on beta blockers for non-cardiac reasons.

Developer Response:

1. To be in the measure denominator, the patient must be on a beta-blocker prior to arrival. The data collection question and relevant notes for abstraction for the data element Beta-Blocker Current Medication are listed below. The case is excluded if the answer to this data element is "no." We do NOT use specific parameters for dosing because this measure was designed to ensure that patients on beta-blocker therapy at home have continued therapy. It is not evaluating whether the dose is therapeutic. There is simply no way to define a "homeopathic dose" for the purposes of data collection.

   Suggested Data Collection Question: Is there documentation that the patient was on a daily beta-blocker therapy prior to arrival? Yes/No

   Notes for Abstraction:

   • If there is documentation that the beta-blocker was taken daily at "home" or is a "current" medication, select "Yes".
   • If a beta-blocker is listed as a home medication without designation of how often or when it is taken, select "Yes".
   • If there is documentation that the beta-blocker is a home/current medication and additional documentation indicates the beta-blocker was not taken daily, e.g., the medication reconciliation form lists a beta-blocker as a home/current medication, but documentation in the nurses notes state "patient denies taking beta-blocker every day", select "No".
   • If there is documentation that the beta-blocker is on a schedule other than daily, select "No".
   • If there is documentation that the beta-blocker was given on a "prn" basis for cardiac or non-cardiac reasons, select "No".
2. The data element Laparoscope has been removed from all SCIP measures for January 1, 2012 discharges. Major surgeries performed laparoscopically may be included if their ICD-9 Principal Procedure Code is included in the denominator (Table 5.10).

   Those exclusions are accounted for in the Notes for Abstraction for the data element Beta-Blocker Current Medication. See above. The abstractor is instructed to answer "no" to this data element which excludes them from the measure.

Steering Committee Follow-up:

1. 2a.4 Denominator Statement: Further define "prior to arrival" to specify "all surgery patients on daily beta blocker therapy prior to arrival".
2. This was one of four related measures considered for potential harmonization. The four included: e*ndorsed measure 0235*: Pre-op beta blocker in patient with isolated CABG; m*aintenance measure 0127*: Pre-operative beta blockade; e*ndorsed measure 0236*: Pre-op beta blocker in patient with isolated CABG; and m*aintenance measure 0284*: Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period. Discussion of the four measures is included here. The Steering Committee stated that measure 0284 is unique and harmonization will not be pursued at this time since it applies beyond CABG to other surgical patients receiving beta blocker therapy prior to admission. The Steering Committee identified measures 0235 and 0127 as similar and should be combined into a single measure. The measure developer confirmed that the measures are similar with the exception of the level of measurement and indicated that they would combine them into a single measure from which information at the individual or facility level can be drawn. The developer also noted that measures 0235 and 0236 are identical in their specifications and are two components of a Physician Quality Reporting System (PQRS) measure. The Steering Committee stated that they considered the measures derived from registry data (measures 0235 and 0127) and administrative claims data (measure 0236) to be similar but not competing since the two data sources result in capture of information about different populations; both measures are useful and valid.

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: Performance is above 90 percent; however, discontinuation of beta blockers in the post-op period has the potential to affect large numbers and for that reason remains a concern. It was noted that beta blockers had to be titrated to a certain heart rate for them to provide a beneficial result to the patient.

2. Scientific Acceptability of Measure Properties: C-10; P-10; M-1; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f.

0284 Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
Meaningful differences; 2g. Comparability; 2h. Disparities) Rationale: The evidence, construction and testing of the measure meets requirements. The Committee questioned the period of time that was considered as part of the perioperative period and why laparoscopic procedures were included in the exclusions and set conditions related to these concerns.
3. Usability: C-12; P-9; M-0; N-0 (3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures) Rationale: The measure is meaningful for public reporting and quality improvement.
4. Feasibility: C-12; P-9; M-0; N-0 (4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented) Rationale: The required data is readily available; the Committee questioned whether the measure would continue to rely on paper records. It is not included in the list for electronic health records (EHR) at present; however, the developer was encouraged to consider capturing titration to heart rate when it does move to EHR. They were also requested that the bradycardia exclusion be included.
Public and Member Comment • Should apply at the clinician level of analysis; and • Multiple data sources Level of Analysis The developer indicated that the measure could be applied at the clinician level but was developed specifically for the facility level. The Committee is sensitive to a number of issues that should be considered as organizations determine at what level of analysis measures should be structured and reported. The Committee believes it is appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues. Based on the developer response, the developer has been asked to provide information regarding what changes and testing are needed to include clinicians in the level of analysis and if none, to do so going forward.

0117 Beta blockade at discharge
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on beta blockers Numerator Statement: Number of patients undergoing isolated CABG who were discharged on beta blockers Denominator Statement: All patients undergoing isolated CABG Exclusions: Cases are removed from the denominator if there was an in-hospital mortality or if discharge beta blocker was contraindicated. Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Clinicians: Group, Facility/ Agency, Population: Counties or cities, Population: National, Population: Regional/network, Population: States Type of Measure: Process Data Source: Registry data Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Steering Committee Recommendation for Endorsement: Y-21; N-0; A-1 Rationale: The measure is important and shows a performance gap.
If applicable, Conditions/Questions for Developer: Developer Response: If applicable, Questions to the Steering Committee:
1. Importance to Measure and Report: Y-21; N-0 (1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence) Rationale: The measure is important and shows a performance gap with a mean of 95.1 percent and a median of 96.9 percent compliance; however, performance drops off sharply indicating there is room for continued performance improvement.
2. Scientific Acceptability of Measure Properties: C-18; P-3; M-0; N-0 (2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities) Rationale: Initial concern about patients with contraindications who were removed from the numerator and denominator and the clarity of the time window were resolved in conversation with the developer. There is a clear relationship of this measure to patient outcomes. The rationale for using eligibility and exclusion criteria in lieu of a risk model that would be difficult to construct was accepted.
3. Usability: C-17; P-4; M-0; N-0

0117 Beta blockade at discharge

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: The measure was considered usable; no concerns were expressed.

4. Feasibility: C-18; P-3; M-0; N-0
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: While there were questions about potential gaming and costs associated with data abstraction, these issues are relatively common across many measures and were not believed to compromise the feasibility of this measure.

Public and Member Comment

- Considers the measure to be topped out due to the mean value being at 95.1 percent; and
- Should be combined with measure 0126 and 0127.

Topped Out
Although the mean value is 95.1 percent, the distribution of values indicates there is opportunity for improvement.

Combining Measures 0126 and 0127
The denominator of measures 0117 and 0127 differ from measure 0126. In addition, two of the measures are included in the NQF-endorsed® measure 0696 The STS CABG Composite Score. Endorsement as a standalone measure does not preclude use in a composite.

0273 Perforated appendix admission rate (PQI 2)

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percentage of admissions for appendicitis within county with perforated appendix.
Numerator Statement: All discharges with ICD-9-CM diagnosis code for perforations or abscesses of appendix in any field among cases meeting the inclusion rules for the denominator.
Denominator Statement: All non-maternal discharges of age 18 years and older in Metro Area1 or county with diagnosis code for appendicitis in any field.
Exclusions: Not applicable.
Adjustment/Stratification: risk adjustment method widely or commercially available The predicted value for each case is computed using a logistic regression model and covariates for gender and age in years (in 5-year age groups). The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate/Observed rates may be stratified by gender, age (5-year age groups), race/ ethnicity.
Level of Analysis: Population: Counties or cities, Population: States
Type of Measure: Outcome
Data Source: Electronic administrative data/ claims
Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850

Steering Committee Recommendation for Endorsement: Y-21; N-0; A-1
Rationale: This is a population-based measure that is scientifically valid and easy to implement with a significant performance gap. Adverse outcomes such as longer length of stay with the resulting increased resource utilization are associated with an appendix perforation.

If applicable, Conditions/Questions for Developer:
Developer Response:
If applicable, Questions to the Steering Committee:

1. Importance to Measure and Report: Y-19; N-2
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: The Committee indicated that the measure demonstrated that adverse outcomes are associated with an appendix perforation and disparity data suggested a gap in care. The measure is useful as a population prevention indicator.

2. Scientific Acceptability of Measure Properties: C-16; P-5; M-0; N-0
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: This measure has scientific validity.

0273 Perforated appendix admission rate (PQI 2)

3. Usability: C-18; P-2; M-0; N-1
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: This measure is useful in looking at clinical management and is in use.

4. Feasibility: C-18; P-3; M-0; N-0
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: This measure uses claims data and is feasible to collect.

Public and Member Comment

- Better performing center may have a higher percentage of discharges with perforated appendicitis; and
- Expand the scope of the measure

The developer stated that the measure was designed with the intent to measure ready access to care and the quality of care in an area such as a county. The Committee supported continued endorsement of the measure based on performance gap and measure intent.

0265 Hospital transfer/admission

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Rate of ASC admissions requiring a hospital transfer or hospital admission upon discharge from the ASC
Numerator Statement: Ambulatory surgical center (ASC) admissions requiring a hospital transfer or hospital admission upon discharge from the ASC.
Denominator Statement: All ASC admissions
Exclusions: None
Adjustment/Stratification: No risk adjustment necessary/No stratification is required for this measure.
Level of Analysis: Facility/ Agency
Type of Measure: Outcome
Data Source: Paper medical record/ flow-sheet
Measure Steward: ASC Quality Collaboration | 5686 Escondida Blvd S | St. Petersburg | Florida | 33715

Steering Committee Recommendation for Endorsement: Y-18; N-3; A-1
Rationale: This measure focus is important and will encourage reporting and provide the ability to analyze transfer rates among ASCs.

If applicable, Conditions/Questions for Developer:

1. 1b.2 Summary of Measure Results Demonstrating Performance Gap: Rates and percentages presented in the measure are confusing. Please review and revise as appropriate
2. 1b.3 Data/Sample: There is a discrepancy between the data that was collected and publicly reported. In the usability section, it states that 1,185 ASCs submitted data for 2nd quarter 2010 on this particular measure; however, in section 1b.3, it states that only 526 ASCs submitted data on this measure. Please reconcile.
3. 2a.2 Numerator Time Window: Revise numerator statement from "…discharge from the ASC" to a more appropriate interval this will also reduce potential perverse incentives. Time window should be at least 24 hours, which would also reduce potential for the unintended incentive to discharge home when admission needed.
4. 2f.2. Methods to Identify Statistically Significant and Practical or Meaningful Differences in Performance: The statistical analysis does not specify a method; validity is questioned. Please reevaluate and in doing so, be specific about what is known about what transfer rates should be expected to be.
5. 2h. Disparities in Care: Please submit any subpopulation performance data that is available for the measures. The committee understands that ASCs do not have a quality reporting system requirement; however, assessment of subpopulation data is important and should be collected and reported for this and other measures.

Developer Response:

1. Although data for 1,185 ASCs are included in the ASC QC database for this measure, many report at the corporate level and do not report data for individual ASCs. The ASC QC database includes center-level rates for this measure for 526 ASCs throughout the US. The rates for this measure are based on the 526 individually-reporting ambulatory surgery centers throughout the US for services provided during April to June 2010. The rate for unscheduled transfer or admission to a hospital ranged from a minimum of 0.0% to a maximum of 2.3%. The mean rate was 0.1% (SD: 0.2%), while the median rate was 0.1%. The maximum transfer rate of 2.3% and a third quartile value of 0.2% demonstrate that there is an opportunity for improvement in this measure.
2. Although data for 1,185 ASCs are included in the ASC QC database for this measure, many report at the corporate level and do not report data for individual ASCs. The ASC QC database includes center-level rates for this measure for 526 ASCs

0265 Hospital transfer/admission

throughout the US. The 526 individually-reporting ambulatory surgery centers represent a convenience sample of the ASC population were used to assess the opportunity for improvement for this measure. The centers were located throughout the US. Services from the second calendar quarter of 2010 were included in this portion of the study.

3. Based on our experience to date, we have no reason to believe that patients requiring admission or transfer to the hospital are being discharged home in order to improve the ASC's performance on this measure. The malpractice risk from substandard care carries much graver consequences than any potential outcome from slightly higher rates of transfer/admission related to this measure. After discussion with NQF staff and if the Committee wishes to see a measure of the hospital admission rate for a more extended timeframe, we will create a separate measure using a sampling protocol. We propose to develop this measure using the following draft numerator and denominator statements, which may be modified during the development phase:
   Numerator statement: Ambulatory surgery center (ASC) admissions experiencing a hospital admission in the 24 hour period following discharge from the ASC.
   Denominator statement: All selected ASC patients (sampling protocol to be developed and tested)
4. An individual ASC's transfer rate may be compared to the standard rate from the ASC Quality website (http://www.ascquality.org/qualityreport.cfm#Transfer). A statistically significant difference in performance may be detected by using a standard test of proportions as outlined in most standard statistical texts. Since each transfer may represent increased risk exposure for the patient, a rate higher than the standard of 1 per 1000 is also of practical significance. The null hypothesis for this test is that the sample proportion from the ASC is not different from the industry standard taken from the ASC Quality website. The alternative is that there is a statistically significant difference. We recommend that this test be performed in its two-sided form so that the ASC may determine if they are either statistically higher or lower than the standard. The recommended p-value for this test is the 0.05 level, but ASCs may have justification for different value. Using this statistical method for detecting significant variances from the industry standard will allow users to determine if differences may be due to sampling error or may indicate a true difference in performance.
5. The data the ASC Quality Collaboration currently receives for this measure is collected at the ASC-level or at the level of the corporate parent of the ASC. Corporate parent data submissions combine data from multiple ASCs. Disparity measures by population group require the collection of patient-level data or collection of the data for individual populations of patients. At this time, the ASC Quality Collaboration does not have access to any patient-level or individual population level data that would allow for analysis of subpopulation disparities based on race, sex and age. However, we understand the importance of subpopulation data and are taking steps that would allow us to collect the necessary data. We are actively pursuing the development of a registry that would allow us to develop subpopulation performance data for this measure and others. Potential registry development vendors have been identified and initial communications regarding the project have already taken place. We plan to select a vendor by third quarter of 2011, initiate the development of the registry database immediately upon contract acceptance, and have a functioning registry three months thereafter.
6. ADDITIONAL INFORMATION and Response from Measure Developer:
   We have also revised 2f1 for this measure #0265 Hospital Transfer to provide additional clarity:
   2f.1. Data/Sample (Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)
   Although data for 1,185 ASCs are included in the ASC QC database, many report at the corporate level and do not report data for individual ASCs. The ASC QC database includes center-level rates for this measure for 526 ASCs throughout the US. The rates for this measure were collected for the 526 individually-reporting ambulatory surgery centers throughout the US for services provided during April to June 2010.

Steering Committee Follow-up:

The Steering Committee agreed with and encourages the developer's plan to create a measure to be submitted to NQF in the future focused on hospital admission rates with an extended timeframe. They expressed reservations that the current measure may have the unintended consequence of patients who are sent home rather than admitted when admission appeared a likely outcome. The Committee was also concerned about the burden of data collection, but agreed that the measure was important and, through reporting across ASCs and to the public, should further encourage reporting by ASCs. They agreed that the response from the developer was adequate.

1. Importance to Measure and Report: Y-15; N-5
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: The Committee deems the focus of the measure important but had concerns about a) the potential for the unintended consequence of discharging a patient to home when potential need for admission is relatively high which argues for modification of the measure to include a time window for admission and b) the low admission rate reflected in the data provided does not demonstrate a meaningful performance gap. Modification of the measure with a broader time window could resolve the concerns.

2. Scientific Acceptability of Measure Properties: C-2; P-10; M-6; N-2

0265 Hospital transfer/admission

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: The measure does not provide concise parameters for measurement benchmarking, since it does not establish an appropriate target rate of transfer. The developer was asked to address this and did so to the satisfaction of the committee (see developer response above.)

3. Usability: C-6; P-9; M-3; N-2
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: The statistical analysis did not seem valid, since the outliers would vary by ambulatory surgical center. This measure may not be ready for public reporting since it does not have a specific target transfer rate. The developer was asked to address this and did so to the satisfaction of the committee (see developer response above.)

4. Feasibility: C-13; P-7; M-0; N-0
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: Data is derived from the patient medical record. The measure could have the unintended consequence of promoting a discharge to home rather than a transfer, since an admission would be viewed as "failing to meet the measure".

Public and Member Comment

- Unsure if measure will generate valuable information; and
- Timeframe should be specified

Generate Valuable Information
Support for this measure within the Committee was based on the intent to improve the ASC reporting rate of less than 50 percent of eligible ASCs.

Timeframe
The developer has committed to develop a measure that would capture "Ambulatory surgery center (ASC) admissions experiencing a hospital admission in the 24 hour period following discharge from the ASC."

1519 Statin therapy at discharge after lower extremity bypass (LEB)

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percentage of patients aged 18 years and older undergoing infrainguinal lower extremity bypass who are prescribed a statin medication at discharge. This measure is proposed for both hospitals and individual providers.
Numerator Statement: Patients undergoing infrainguinal lower extremity bypass who are prescribed a statin medication at discharge.
Denominator Statement: All patients aged 18 years and older undergoing lower extremity bypass as defined above who are discharged alive, excluding those patients who are intolerant to statins.
Exclusions: Chart documentation that patient was not an eligible candidate for statin therapy due to known drug intolerance, or patient died before discharge.
Adjustment/Stratification: No risk adjustment necessary/No stratification is required for this measure.
Level of Analysis: Can be measured at all levels, Clinicians: Group, Clinicians: Individual, Facility/ Agency
Type of Measure: Process
Data Source: Registry data
Measure Steward: Society for Vascular Surgery | 633 N. Saint Clair St., 22nd Floor | Chicago | Illinois | 60611

Steering Committee Recommendation for Endorsement: Y-20; N-0 ; A-1
Rationale: The focus of the measure is important and while the evidence cited speaks to statin use for LDL control, use of statins without reference to LDL is the current trend and, per the developer, it is expected that it will be supported in future guidelines.

If applicable, Conditions/Questions for Developer:

1. 2a.2 Numerator Time Window: Timeframe lacks precision. Please address.
2. 2a.7 Denominator Time Window: Timeframe lacks precision. Please address.

Note: Discussion of Related and Competing measures may result in additional requests to developers specific to harmonization

Developer Response:

We have modified the form time window for all SVS measures as follows:
Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (i.e., reported as too low volume to report).

1519 Statin therapy at discharge after lower extremity bypass (LEB)
Steering Committee Follow-up: 1. The Steering Committee agreed that the response from the developer was adequate. 2. This was one of two related measures considered for potential harmonization. The two included: m*aintenance measure 0118*: Anti-lipid treatment discharge and n*ew candidate measure 1519*: Statin therapy at discharge after lower extremity bypass (LEB). Discussion of the two measures is included here. The Steering Committee stated that measures 0118 and 1519 were related in terms of therapy used; however, they involve different procedures and different patient populations and are reasonably aligned thus no further action was recommended.
1. Importance to Measure and Report: Y-19; N-1 (1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence) Rationale: The measure is based on a guideline that focuses on statin use for LDL control while the measure focuses on statin use regardless of the LDL control; however, the current trend in practice to use of statin without reference to LDL. Performance rates have improved from 41 percent to 79 percent, still short of the 90 percent goal.
2. Scientific Acceptability of Measure Properties: C-8; P-11; M-1; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The Committee noted the numerator and denominator timeframes lacked precision. The developer revised the timeframes to 12 months.
3. Usability: C-14; P-5; M-1; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The measure, which relies on registry data, was considered usable.
4. Feasibility: C-13; P-7; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The feasibility of implementation was questioned since the data comes from a registry. For registry participants the measure is quite feasible; a non-registry participant would have to collect manually or develop an electronic system.
Public and Member Comment Commenters suggested replacement of this process measure with an outcome measure. The focus of the measure was determined by the Committee to be important and is guideline based. NQF will continue to seek outcome measures that can supplement or supplant process measures.

0365 Pancreatic resection mortality rate (IQI 9) (risk adjusted)
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of adult hospital discharges with procedure code of pancreatic resection with an in-hospital death, stratified by benign and malignant disease. Numerator Statement: Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator. Denominator Statement: Hospital discharges, age 18 years and older, with ICD-9-CM pancreatic resection code procedure and a diagnosis code of pancreatic cancer in any field, stratified by benign and malignant disease. Exclusions: Exclude cases: • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium) ICD-9-CM codes: 577.0 Acute pancreatitis Adjustment/Stratification: Risk adjustment method widely or commercially available The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age in years (in 5-year age groups), All Patient Refined-Diagnosis Related Group (APR-DRG) and APR-DRG risk-of-mortality subclass. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate/User has the optin to stratify by gender, age (5-year age groups), race/ ethnicity, primary payer, and

0365 Pancreatic resection mortality rate (IQI 9) (risk adjusted)

custom stratifiers./ Malignant Disease:
ICD-9-CM pancreatic cancer diagnosis codes:
1520
MALIGNANT NEOPL DUODENUM
1561
MAL NEO EXTRAHEPAT DUCTS
1562
MAL NEO AMPULLA OF VATER
1570
MAL NEO PANCREAS HEAD
1571
MAL NEO PANCREAS BODY
1572
MAL NEO PANCREAS TAIL
1573
MAL NEO PANCREATIC DUCT
1574
MAL NEO ISLET LANGERHANS
1578
MALIG NEO PANCREAS NEC
1579
MALIG NEO PANCREAS NOS
Benign Disease:
All other cases
Level of Analysis: Facility/ Agency
Type of Measure: Outcome
Data Source: Electronic administrative data/ claims
Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850

Steering Committee Recommendation for Endorsement: Y-15; N-0; A-0
Rationale: The measure is based on strong evidence and evaluation criteria are met. With stratification that includes benign and malignant disease and both endovascular and open repair, its usefulness is enhanced.

If applicable, Conditions/Questions for Developer:
Overarching comment: Please provide feasibility of reporting mortality stratified by institutional volume (e.g., high, medium, low volume with parameters for each) rather than having rate and mortality separated.

1. De.2 Ensure measure description accurately captures measure focus.
2. 2a.8 Denominator Details: Do not limit to pancreatic resection for cancer - could stratify by malignant and benign. Also, consider providing volume as well as rate.
3. 2a.9 Denominator Exclusions: Please remove 'transferring to another short-term hospital (DISP=2)' from the exclusions.
4. 2a.9 Denominator Exclusions: Add exclusion for pancreatitis.

Measures 0365 and 0366 should be fully harmonized in order to properly report as a pair. This will involve including all pancreatic disease in both the numerator and denominator of both measures. They can then be stratified by malignant and benign disease.
Note: Discussion of Related and Competing measures may result in additional requests to developers specific to harmonization.
Developer Response:

1. AHRQ agrees to revise the measure description to more accurately capture the measure focus
2. AHRQ agrees to harmonize the mortality and volume indicator denominators to include benign disease in the mortality measure. Note that the mortality and volume indicator (0366) are designated as paired measures
3. This request is problematic for a few reasons. First, the outcome of interest (in-hospital mortality) is not observed for these cases. Second, it is possible that a single case may be counted twice (once for the transferring hospital, once for the receiving hospital). Third, removing this exclusion would require using data that linked patients across hospitalizations (in order to avoid the issues #1 and #2), which is not readily available for individual hospitals across institutions. Therefore, we respectively defer a definitive response to this request pending the routine availability of linked hospitalization data, or at a minimum additional analysis using such data of the potential impact of removing the exclusion.
4. AHRQ agrees to add an exclusion for pancreatitis

Steering Committee Follow-up:

1. The Steering Committee expressed their concern about transferred patients being excluded from the measure. AHRQ

0365 Pancreatic resection mortality rate (IQI 9) (risk adjusted)
responded that the number is less that 1 percent and the majority is transfer of convenience for the patient. The Steering Committee agreed that the response from the developer was adequate. 2. This was one of three related measures considered for potential harmonization. The three included: m*aintenance measure 0365*: Pancreatic resection mortality rate (IQI 9); m*aintenance measure 0366*: Pancreatic resection volume (IQI 2); and e*ndorsed measure 0738*: Survival predictor for pancreatic resection surgery. Discussion of the three measures is included here. The Steering Committee requested the measure developer continue its expedited work to combine measures 0365 and 0366, including benign disease. After some discussion, the Members agreed that because measures 0365 and 0366 are risk adjusted and measure 0738 is not, that recommendations related to harmonization of numerator and denominator should not be advanced at this time. On the September 13 conference call, the Steering Committee reviewed Measures 0365 and 0366 which have been harmonized to reflect both benign and malignant disease. The developer stated that empirical literature has predominately focused on resections for cancer and there is a substantial difference in short term outcomes between high volume and low volume centers. They noted the potential value of including benign disease as a separate stratum. The developer also indicated that they continue to work on combining the measures into a single measure. Progress to this end will be reviewed on a subsequent conference call. On the November 29 call, the developer indicated that testing results were provided for the revised measures (0365 and 0366) that are now stratified by benign and malignant disease. The Committee was satisfied with the testing results and recommended both measures for endorsement. The Committee will vote on final recommendation for endorsement of this measure following the conference call.
1. Importance to Measure and Report: Y-15; N-0 (1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence) Rationale: The evidence supports the measure's focus on pancreatic resections for cancer and while it is a low-volume procedure, mortality rates are high and merit tracking.
2. Scientific Acceptability of Measure Properties: C-9; P-6; M-0; N-0 (2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities) Rationale: The measure was considered scientifically acceptable. The Committee discussed the importance of separate measures focusing on a pancreatic resection for cancer and a pancreatic resection for benign disease and determined that both could be captured in a single measure that is stratified to report each. The developer revised the measure and it is now stratified by benign and malignant disease.
3. Usability: C-10; P-5; M-0; N-0 (3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures) Rationale: This measure is in use in multiple states and healthcare systems and is reported on HCUPnet as well as used in the MONAHRQ system that is provided for public reporting and quality improvement.
4. Feasibility: C-12; P-3; M-0; N-0 (4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented) Rationale: This measure was considered feasible; data is obtained from electronic claims and chart abstraction.
Public and Member Comment • Related measures that should have been viewed as competing measures • Use of hierarchical risk modeling (HRM) which is known to reduce sensitivity to detect outliers Related measures that should have been viewed as competing measures *Committee Response:* Originally, the Committee believed the pancreatic resection surgery measures were complementary and all three (0365, 0366 and 0738) provided additive value to the NQF portfolio. After reviewing the submitted comments and reviewing other discussions on similar measures, the Committee determined that the pancreatic resection surgery measures were competing. Similar to the abdominal aortic aneurysm (AAA) measures, the Committee determined that measures 0365 and 0366 were "best-in-class". The Committee preferred these measures to the previously endorsed measure (0738) because they are risk adjusted and distinguish between benign and malignant disease. In addition, the method of data collection varies with both using administrative data, but the Leapfrog measure does not use any patient-level data. Because measure 0738 was not under maintenance review in this project, the Committee could not make a recommendation on endorsement at this time. Use of HRM which is known to reduce sensitivity to detect outliers

0365 Pancreatic resection mortality rate (IQI 9) (risk adjusted)
Measure Developer Response: The measure can be calculated to produce a risk adjusted rate and a smoothed rate. HRM is used in the smoothed rate, but not the risk adjusted rate. The user has the option to use either rate.

0366 Pancreatic resection volume (IQI 2)
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Number of adult hospital discharges with procedure for pancreatic resection, stratified by benign and malignant disease. Numerator Statement: Hospital discharges, age 18 years and older, with ICD-9-CM codes for pancreatic resection procedure, stratified by benign and malignant disease. Denominator Statement: Not applicable Exclusions: Not applicable Adjustment/Stratification: No risk adjustment necessary/. Malignant Disease: ICD-9-CM pancreatic cancer diagnosis codes: 1520 MALIGNANT NEOPL DUODENUM 1561 MAL NEO EXTRAHEPAT DUCTS 1562 MAL NEO AMPULLA OF VATER 1570 MAL NEO PANCREAS HEAD 1571 MAL NEO PANCREAS BODY 1572 MAL NEO PANCREAS TAIL 1573 MAL NEO PANCREATIC DUCT 1574 MAL NEO ISLET LANGERHANS 1578 MALIG NEO PANCREAS NEC 1579 MALIG NEO PANCREAS NOS Benign Disease: All other cases Level of Analysis: Facility/ Agency Type of Measure: Structure/management Data Source: Electronic administrative data/ claims Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850
Steering Committee Recommendation for Endorsement: Y-15; N-0; A-0 Rationale: The measure was considered important and cited strong evidence. With reporting as a pair with 0365 and stratification that includes benign and malignant disease and both endovascular and open repair, its usefulness is enhanced.
If applicable, Conditions/Questions for Developer: 1. De.2 Ensure measure description accurately captures measure focus. 2. 2a.3 Numerator Details: Partial resections and partial operations should be included in 0366, 3. 2a.8 Denominator Details: Do not limit to pancreatic resection for cancer. 4. 2a.9 Denominator Exclusions: Please remove 'transferring to another short-term hospital (DISP=2)' from the exclusions. 5. 2a.9 Denominator Exclusions: Add exclusion for pancreatitis. 6. 2b.3 and 2.c.3 Testing Results: Text speaks to esophageal resection. Please provide correct information and advise if there are other such errors within the submission that have required correction. Measures 0365 and 0366 should be fully harmonized in order to properly report as a pair. This will involve including all pancreatic disease in both the numerator and denominator of both measures. They can then be stratified by malignant and benign disease. Note: Discussion of Related and Competing measures may result in additional requests to developers specific to harmonization. Developer Response:

0366 Pancreatic resection volume (IQI 2)

1. AHRQ agrees to revise the measure description to more accurately capture the measure focus
2. AHRQ agrees to include partial resections and partial operations
3. The volume measure contains no such exclusion. However, in general AHRQ agrees to harmonize the mortality and volume indicator denominators to include benign disease in the mortality measure. Note that the mortality (0365) and volume indicator are designated as paired measures.
4. The volume measure contains no such exclusion; however, see note above regarding harmonization
5. The volume measure contains no such exclusion; however, see note above regarding harmonization
6. Such erroneous references shall be corrected

Steering Committee Follow-up:

1. The Steering Committee agreed that the response from the developer was adequate.
2. This was one of three related measures considered for potential harmonization. The three included: m*aintenance measure 0365*: Pancreatic resection mortality rate (IQI 9); m*aintenance measure 0366*: Pancreatic resection volume (IQI 2); and e*ndorsed measure 0738*: Survival predictor for pancreatic resection surgery. Discussion of the three measures is included here. The Steering Committee requested the measure developer continue its expedited work to combine measures 0365 and 0366, including benign disease. After some discussion, the Members agreed that because measures 0365 and 0366 are risk adjusted and measure 0738 is not, that recommendations related to harmonization of numerator and denominator should not be advanced at this time.

On the September 13 conference call, the Steering Committee reviewed Measures 0365 and 0366 which have been harmonized to reflect both benign and malignant disease. The developer stated that empirical literature has predominately focused on resections for cancer and there is a substantial difference in short term outcomes between high volume and low volume centers. They noted the potential value of including benign disease as a separate stratum. The developer also indicated that they continue to work on combining the measures into a single measure. Progress to this end will be reviewed on a subsequent conference call.

On the November 29 call, the developer indicated that testing results were provided for the revised measures (0365 and 0366) that are now stratified by benign and malignant disease. The Committee was satisfied with the testing results and recommended both measures for endorsement. The Committee will vote on final recommendation for endorsement of this measure following the conference call.

1. Importance to Measure and Report: Y-15; N-0
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: The evidence supports the measure's focus on pancreatic resections for cancer and while it is a low-volume procedure, the impact in terms of mortality is important to track and report.

2. Scientific Acceptability of Measure Properties: C-9; P-6; M-0; N-0
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: The measure was considered scientifically acceptable. The Committee discussed the importance of separate measures focusing on a pancreatic resection for cancer and a pancreatic resection for benign disease and determined that both could be captured in a single measure to be stratified to report each. The developer revised the measure and it is now stratified by benign and malignant disease.

3. Usability: C-10; P-5; M-0; N-0
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: This measure is in use in multiple states and healthcare systems and is reported on HCUPnet as well as used in the MONAHRQ system that is provided for public reporting and quality improvement.

4. Feasibility: C-14; P-1; M-0; N-0
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: This measure was considered feasible; data is obtained from electronic claims and chart abstraction.

Public and Member Comment

- Related measures that should have been viewed as competing measures
- Measures should include individual clinician level of measurement

Related measures that should have been viewed as competing measures
Committee Response: Originally, the Committee believed the pancreatic resection surgery measures were complementary and all three (0365, 0366 and 0738) provided additive value to the NQF portfolio. After reviewing the submitted comments and reviewing other

0366 Pancreatic resection volume (IQI 2)
discussions on similar measures, the Committee determined that the pancreatic resection surgery measures were competing. Similar to the abdominal aortic aneurysm (AAA) measures, the Committee determined that measures 0365 and 0366 were "best-in-class". The Committee preferred these measures to the previously endorsed measure (0738) because they are risk adjusted and distinguish between benign and malignant disease. In addition, the method of data collection varies with both using administrative data, but the Leapfrog measure does not use any patient-level data. Because measure 0738 was not under maintenance review in this project, the Committee could not make a recommendation on endorsement at this time. Measures should include individual clinician level of measurement *Committee Response:* The Committee is sensitive to a number of issues that should be considered as organizations determine at what level of analysis measures should be structured and reported. The Committee agreed that where appropriate, reporting at the clinician level is important but should be done only where the issues are carefully considered. Public reporting at the facility level may be suitable only for accountability purposes due to issues such as attribution and adequate sample size but must also be balanced with consumer desires for this type of information. The Committee strongly encourages facilities and institutions, in which the measure is currently publicly reported or used for other accountability purposes as a facility-level measure, to examine the performance at the individual clinician level for quality improvement purposes. *Measure Developer Response:* The measure was initially developed and subsequently maintained for measurement at the hospital level. Whether the measure is suitable (or could be feasibly adapted) for the unit of analysis noted by the commenter has yet to be tested by AHRQ. We will note this request for future consideration.

Measures not Recommended for Endorsement:

0364 Incidental appendectomy in the elderly rate (IQI 24)
For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Percent of elderly cases with intra-abdominal procedure with an incidental appendectomy. Numerator Statement: Number of incidental appendectomy procedures among cases meeting the inclusion and exclusion rules for the denominator. Denominator Statement: All discharges, age 65 years and older, with ICD-9-CM codes for abdominal and pelvic surgery. Exclusions: Exclude: - MDC 14 (pregnancy, childbirth, and puerperium) - cases with a code for surgical removal of the colon (colectomy) or pelvic evisceration - cases with any diagnosis of cancer involving or adjacent to the appendix Adjustment/Stratification: no risk adjustment necessary/User has the option to stratify by gender, age (5-year age groups), race / ethnicity, primary payer, or use custom stratifiers. Level of Analysis: Facility/ Agency Type of Measure: Process Data Source: Electronic administrative data/ claims Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850
Steering Committee Recommendation for Endorsement: No. Rationale: Did not pass threshold criterion of Importance to Measure and Report based on continued value and relevance; thus, remaining criteria were not assessed. Submission of Request for Reconsideration: The request for reconsideration was reviewed by the Consensus Standards Approval Committee (CSAC) co-chairs and it was determined to uphold the Committee's decision to not recommend the measure.
If applicable, Conditions/Questions for Developer: Developer Response: If applicable, Questions to the Steering Committee:
1. Importance to Measure and Report: Y-6; N-15 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The surgery now is rarely performed and while performing an appendectomy when it is not indicated has the potential to lead to problems of contaminating a clean abdominal surgery, the rate of performing the surgery is quite low. While the rate of incidental appendectomy is at 2 percent, the Committee questioned whether this measure should be classified as a high impact area or gap in care and its level of relevance and value to improving patient care.

0364 Incidental appendectomy in the elderly rate (IQI 24)
2. Scientific Acceptability of Measure Properties: *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale:
3. Usability: (3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures) Rationale:
4. Feasibility: *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale:
Public and Member Comment Commenters believed that this measure was a good overuse measure and cost reduction. The Committee noted that the surgery is rarely performed (2 percent) thus did not meet the criterion of importance based on value and relevance with respect to the impact and performance gap subcriteria. The cost of applying a measure that is relevant for such a small group of patients is potentially significant. The Committee did not change its recommendation. The request for reconsideration submitted by the measure developer was completed by the CSAC co-chairs.

1480 Patient(s) 18 years of age and older on a beta-blocker at admission or within seven days of discharge of an isolated CABG procedure.
For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Patient(s) 18 years of age and older hospitalized for an isolated CABG procedure taking a beta-blocker at admission or within seven days of discharge. Numerator Statement: Patient(s)who are taking a Beta-blocker at CABG admission date or within seven days of discharge. Denominator Statement: People hospitalized for an isolated CABG procedure Exclusions: 1. Exclude patients who were readmitted to an acute or non-acute care facility for any diagnosis within seven days after discharge 2. Exclude the event if the patient died during the admission 3. Exclude the patient if the patient did not have pharmacy benefits throughout the CABG event 4. Exclude patients who had a contraindication to Beta-blockers or were taking Beta-blocker exclusion medications Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Can be measured, Clinicians: Group, Clinicians: Individual, Facility/ Agency, Health Plan, Integrated Delivery System, Multi-site/ corporate chain, Population: Counties or cities, Population : States, Program: Disease management, Program: QIO Type of Measure: Process Data Source: Electronic administrative data/ claims, Pharmacy data Measure Steward: Ingenix | 12125 Technology Drive | Eden Prairie | Minnesota | 55344
Steering Committee Recommendation for Endorsement: No Rationale: Did not pass the threshold criterion of Importance to Measure and Report; thus, remaining criteria were not assessed.
If applicable, Conditions/Questions for Developer: Developer Response: If applicable, Questions to the Steering Committee:
1. Importance to Measure and Report: Y-6; N-15 (1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence) Rationale: The Committee identified a number of concerns about the measure. They primarily believed that the scope of the measure was limited by the fact that it provides information on a small subset of the population, since it includes only patients with insurance and does not include those with Medicare or Medicaid. The measure relies on pharmacy claims and provision of a prescription which patients may not fill within the seven days post-hospitalization.
2. Scientific Acceptability of Measure Properties: (2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities) Rationale:
3. Usability: (3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing

1480 Patient(s) 18 years of age and older on a beta-blocker at admission or within seven days of discharge of an isolated CABG procedure.
measures) Rationale:
4. Feasibility: (4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented) Rationale:
Public and Member Comment No comments were received.

CARDIAC and VASCULAR

Endorsed Measures:

0357 Abdominal aortic aneurysm (AAA) repair volume (IQI 4)
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Count of adult hospital discharges in a one year time period with a procedure code of AAA repair. Numerator Statement: Discharges, age 18 years and older, with an abdominal aortic aneurysm (AAA) repair procedure and a primary or secondary diagnosis of AAA. Denominator Statement: Not applicable. Exclusions: Not applicable. Adjustment/Stratification: no risk adjustment necessary/ The stratification of the denominator for open vs. endovascular and ruptured vs. unruptured involve the following codes in the denominator specification: AAA Repair (ICD-9-CM Procedure Codes: OPEN ; ‘3834´ = ´1´ /* AORTA RESECTION & ANAST * ´3844´ = ´1´ /* RESECT ABDM AORTA W REPL */ ´3864´ = ´1´ /* EXCISION OF AORTA */ /* ENDOVASCULAR */; ´3971´ = ´1´ /* ENDO IMPL GRFT ABD AORTA */ /* Include Only: AAA */ /* ICD-9-CM Diagnosis Codes: */ /* RUPTURED */; ´4413 ´ = ´1´ /* RUPT ABD AORTIC ANEURYSM */ /* UNRUPTURED */; ´4414 ´ = ´1´ /* ABDOM AORTIC ANEURYSM */ Level of Analysis: Facility/ Agency Type of Measure: Structure/management Data Source: Electronic administrative data/ claims Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850
Steering Committee Recommendation for Endorsement: Y-15; N-2; A-0 Rationale: The measure initially did not pass the importance criterion; however, the Committee asked for additional information. With that information, the Committee reconsidered the measure. The developer revised the measure to include stratification by endovascular and open repairs. With this change, the Committee decided to recommend the measure for endorsement.
If applicable, Conditions/Questions for Developer: 1. Overarching Comment: The Steering Committee vote regarding the NQF evaluation criterion of “Importance” was split with 10 voting yes and 11 voting no and a number of members noted the measure should only be reported with the related mortality measure. The developer will want to review the measure in its entirety in this light and provide whatever additional information/specification including value as a paired measure with mortality that it believes appropriate. Should specifications change, it is important to provide information regarding testing with the changes.

0357 Abdominal aortic aneurysm (AAA) repair volume (IQI 4)

2. 2a. 11 Stratification Details/Variables: Measure should stratify the measure by endovascular and open repairs.

Note: Discussion of Related and Competing measures may result in additional requests to developers specific to harmonization. As discussed the developer should meet with SVS to harmonize or blend measures concerning AAA

Developer Response:

1. AHRQ agrees to stratify the measure by endovascular and open repairs, but notes that additional methodological development will be required to ensure the measures have adequate reliability.
2. AHRQ noted at the meeting that the volume and mortality measures are to be reported as paired measures though some users may not have the information to report both.

Steering Committee Follow-Up:

The Steering Committee was concerned about volume being reported as a singular measure.

1. The Steering Committee requested information regarding needed methodological changes for the measure based on the endovascular and open repair stratification and will further consider the measure with that information. AHRQ will also further clarify the risk adjustment model.
2. The Steering Committee was concerned that the developer had not addressed creating a composite of the volume (0357) and morbidity measure (0359). Members noted that the developer had agreed to stratify the measure by endovascular and open repairs but that the measure did have reliability testing for the requested change. The Steering Committee asked for additional information about how the developer would redevelop their risk stratification model. On the August 3 conference call, the developer discussed the measure together with Measure 0359 and highlighted preliminary results of revising the measure with four strata. The developer is continuing to explore how the outcomes information can be put back together with volume for the requested composite/combined measures. The measure will move forward as a composite rather than as two measures.

On the September 13 conference call, the Steering Committee reviewed the developer's revisions to reflect four strata, ruptured or unruptured aneurysms repaired by open or endovascular approaches. These four components will be reported separately within this measure in addition to reporting overall measure performance. The developer also responded to questions about testing results and public reporting details to the satisfaction of the Committee.

On the November 29 call, the developer stated that measure 0359: Abdominal aortic artery (AAA) repair mortality rate (IQI 11) was revised and is now adjusted by volume. Although volume has been incorporated into measure 0359, the developer stated that measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4) should remain. Some Committee members voiced their concerns as to whether volume should be a stand-alone measure. Members of the Committee also indicated that both measures are used by a variety of individuals for a variety of reasons. It was noted on the call that measures 0357 and 0359 are to be reported as paired measures. During the related and competing measures discussion, the Committee agreed that measures 0357 and 0359 were competing against the Leapfrog measure, measure 0736: Survival predictor for abdominal aortic aneurysm (AAA). The Committee preferred the AHRQ measures (0357 and 0359) to measure 0736 as measures 0357 and 0359 distinguish between open vs. endovascular procedures and the measures are risk adjusted. The Committee will vote on each criteria and final recommendation for endorsement of this measure following the conference call.

1. Importance to Measure and Report: Y-14; N-3

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: The measure would provide key information to the public about AAA mortality. The majority of AAA repairs are done endovascularly and open repairs have become more complicated.

2. Scientific Acceptability of Measure Properties: C-8; P-8; M-1; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale: The developer revised the measure to reflect four strata, ruptured or unruptured aneurysms repaired by open or endovascular approaches.

3. Usability: C-11; P-4; M-1; N-1

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale: Several members were uncertain if volume should remain as a stand-alone performance measure.

4. Feasibility: C-14: P-3; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

0357 Abdominal aortic aneurysm (AAA) repair volume (IQI 4)

Rationale: The data is derived from electronic claims.

Public and Member Comment

- Related measures that should have been viewed as competing measures
- Measures should include individual clinician level of measurement

Related measures that should have been viewed as competing measures

Committee Response: The Committee determined that the AAA measures (0357 and 0359) were "best-in-class". The Committee preferred these measures to the previously endorsed measure (0736) because they are risk adjusted and include more specificity since they distinguished between open vs. endovascular procedures and ruptured vs. unruptured AAA. In addition, the method of data collection varies with both using administrative data, but the Leapfrog measure does not use any patient-level data. Because measure 0736 was not under maintenance review in this project, the Committee could not make a recommendation on endorsement at this time.

Measures should include individual clinician level of measurement

Committee Response: The Committee is sensitive to a number of issues that should be considered as organizations determine at what level of analysis measures should be structured and reported. The Committee agreed that where appropriate, reporting at the clinician level is important but should be done only where the issues are carefully considered. Public reporting at the facility level may be suitable only for accountability purposes due to issues such as attribution and adequate sample size but must also be balanced with consumer desires for this type of information. The Committee strongly encourages facilities and institutions, in which the measure is currently publicly reported or used for other accountability purposes as a facility-level measure, to examine the performance at the individual clinician level for quality improvement purposes.

Measure Developer Response: The measure was initially developed and subsequently maintained for measurement at the hospital level. Whether the measure is suitable (or could be feasibly adapted) for the unit of analysis noted by the commenter has yet to be tested by AHRQ. We will note this request for future consideration.

0359 Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11) (risk adjusted)

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percent of adult hosptial discharges in a one-year time period with a procedure code of AAA repair and a diagnosis of AAA with an in-hospital death.

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

Denominator Statement: Discharges, age 18 years and older, with ICD-9-CM AAA repair code procedure and a diagnosis of AAA in any field. The denominator may be stratified by open vs. endovascular procedures, and ruptured vs. un-ruptured AAA.

Exclusions: Exclude cases:

• missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing)
• transferring to another short-term hospital (DISP=2)
• MDC 14 (pregnancy, childbirth, and puerperium)

Adjustment/Stratification: risk adjustment method widely or commercially available The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age in years (in 5-year age groups), All Patient Refined-Diagnosis Related Group (APR-DRG) and APR-DRG risk-of-mortality subclass. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate.

Risk adjustment factors: sex

age 18-24; age 25-29; age 30-34; age 35-39; age 40-44; age 45-49; age 50-54; age 55-59; age 60-64; age 65-69; age 70-74; age 75-79; age 80-84; age 85+

ADRG 1731 (other vascular procedures-minor)
ADRG 1732 (other vascular procedures-moderate)
ADRG 1733 (other vascular procedures-major)
ADRG 1734 (other vascular procedures-extreme)
ADRG 1691 (major thoracic and abdominal vascular procedures-minor)
ADRG 1692 (major thoracic and abdominal vascular procedures-moderate)

0359 Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11) (risk adjusted)

ADRG 1693 (major thoracic and abdominal vascular procedures-major)
ADRG 1694 (major thoracic and abdominal vascular procedures-extreme
MDC 5 (Cardiovascular)
Transfer-in status
Gender, age (5-year age groups), race/ ethnicity, primary payer, custom
The stratification of the denominator for open vs. endovascular and ruptured vs. unruptured involves the following codes in the denominator specification:
AAA Repair
ICD-9-CM Procedure Codes:
OPEN
´3834´ = ´1´ /* AORTA RESECTION & ANAST */
´3844´ = ´1´ /* RESECT ABDM AORTA W REPL */
´3864´ = ´1´ /* EXCISION OF AORTA */
ENDOVASCULAR
´3971´ = ´1´ /* ENDO IMPL GRFT ABD AORTA */
AAA
ICD-9-CM Diagnosis Codes:
RUPTURED
´4413´ = ´1´ /* RUPT ABD AORTIC ANEURYSM */
UNRUPTURED
´4414´ = ´1´ /* ABDOM AORTIC ANEURYSM */
Level of Analysis: Facility/ Agency
Type of Measure: Outcome
Data Source: Electronic administrative data/ claims
Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850

Steering Committee Recommendation for Endorsement: Y-16; N-0; A-0
Rationale: The measure initially did not pass the importance criterion; however, the Committee asked for additional information. With that information, the Committee reconsidered the measure. The developer revised the measure to include stratification by endovascular and open repairs. With this change, the Committee decided to recommend the measure for endorsement.

If applicable, Conditions/Questions for Developer:

1. 2a.11 Stratification Details/Variables: a) Stratify the measure by endovascular and open repairs as well as emergency vs. elective repair; b) specify the risk stratification model used; 3) identify settings where the model has been validated in addition to the training data set in which it was developed or provide other supporting data as to its validity.
2. 2b.3 Testing Results: Please provide information about signal to noise ratio.

Note: Discussion of Related and Competing measures may result in additional requests to developers specific to harmonization. As discussed, the developer should meet with SVS to harmonize or blend measures concerning AAA.

Developer Response:

1. As noted above, AHRQ agrees to stratify the measure by endovascular and open repairs; in addition, AHRQ agrees to stratify by ruptured vs. un-ruptured aneurysm (which is what we assume you mean by emergency vs. elective repair); but AHRQ again notes that additional methodological development will be required to ensure the measures have adequate reliability; b) the risk stratification model is specified below; c) the model has been validated on the State Inpatient Databases (SID), which consists of hospital discharge data from 40 states (constituting about 90% of hospital discharges in the U.S) for the years 2001-2008
2. The signal to noise ratio is the ratio of the between hospital variance (signal) to the within hospital variance (noise). The formula is signal / (signal + noise). The ratio itself is only a diagnostic for the degree of variance in the risk-adjusted rate systematically associated with the provider. Therefore, what matters is the magnitude of the variance in the "smoothed" rate (that is, the variance in the risk-adjusted rate after the application of the univariate shrinkage estimator based on the signal ratio). What the data demonstrate is systematic variation in the provider level rate of 2.6 to 7.6 per 100 from the 5th to 95th percentile after a signal ratio of 0.307 is applied as the shrinkage estimator (that is, after accounting for variation due to random factors).

Table 3. Risk Adjustment Coefficients for IQI #11— AAA Repair Mortality

Parameter	Label	DF	Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square
Intercept		1	-6.6044	0.1713	1486.04	0.0000
Sex	Female	1	0.4539	0.0747	36.95	0.0000

0359 Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11) (risk adjusted)						
Age	65 to 74	1	0.4879	0.1072	20.72	0.0000
Age	75 to 79	1	0.8737	0.1201	52.97	0.0000
Age	80 to 84	1	1.1092	0.1200	85.50	0.0000
Age	85+	1	1.4440	0.1359	112.97	0.0000
APR-DRG	'1691' to '1692'	1	1.6789	0.1623	107.05	0.0000
APR-DRG	'1693' to '1694'	1	3.9127	0.1523	659.72	0.0000
APR-DRG	'1733' to '1734'	1	3.1568	0.1676	354.55	0.0000
MDC	5	1	2.6400	0.1483	316.85	0.0000
MDC	Other	1	2.9536	0.2252	172.05	0.0000
RUPTURED		1	2.0565	0.0808	647.42	0.0000

c-statistic 0.937

Note: The APR-DRG consists of the DRG and the risk-of-mortality subclass (minor (1), moderate (2), major (3) and extreme (4)).

Steering Committee Follow-Up:

1. The Steering Committee requested information regarding needed methodological changes for the measure based on the endovascular and open repair stratification and will further review the measure with that information. AHRQ will also further clarify the risk adjustment model.
2. The Steering Committee was concerned that the developer had not addressed creating a composite of the volume (0357) and morbidity measure (0359). It noted that the developer had agreed to stratify the measure by endovascular and open repairs but that the measure did not have any reliability testing for the requested change. The Steering Committee asked for additional information about how the developer would redevelop their risk stratification model. On the August 3 conference call, the developer highlighted preliminary results about the measure's stratification. A Steering Committee member questioned whether the measure was useful for endovascular un-ruptured repairs, if the difference between the best performing hospitals was 0.00 percent and worst performing hospitals was 0.75 percent repairs, which was considered minimal. Additionally, it was noted that open ruptured repairs also showed little difference between the best performing hospitals at 24.74 percent and the worst performing hospitals at 26.53 percent. The Steering Committee resolved that while some of the collected data may show small differences, the measure would also show areas of variation. The developer further explained that they could use the data to identify hospitals that performed at better or worse than average but for other subsets.

On the August 3 conference call, the developer highlighted preliminary results of revising the measure with four strata – ruptured vs. unruptured; and open vs. endovascular repair using available data from a period of years using data from 1700 hospitals, of which 500 do endovascular repair of ruptured aneurysms. Based on the preliminary data of that stratification, a number of issues were discussed including whether the measure was useful for endovascular un-ruptured repairs, given minimal differences between the best performing hospitals (0.00 percent)and worst performing hospitals (0.75 percent);small differences in open ruptured repairs between hospitals that performed better than expected (24.74 percent) and those that performed worse than expected (26.53 percent); risk stratification approaches using inpatient diagnoses vs. clinical data or outpatient diagnoses. The Steering Committee opined that while some of the collected data may show small differences, the breakdown can show areas of variation that warrant measurement and follow up. The developer is continuing to explore how the outcomes information can be put back together with volume for the requested composite/combined measures.

On the September 13 conference call, the Steering Committee reviewed the developer's revisions to reflect four strata, ruptured or unruptured aneurysms repaired by open or endovascular approaches. These four components will be reported separately within this measure in addition to reporting overall measure performance. The developer also responded to questions about testing results and public reporting details to the satisfaction of the Committee.

On the November 29 call, the developer stated that measure 0359: Abdominal aortic artery (AAA) repair mortality rate (IQI 11) was revised and is now adjusted by volume. Although volume has been incorporated into measure 0359, the developer stated that measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4) should remain. Some Committee members voiced their concerns as to whether volume should be a stand-alone measure. Members of the Committee also indicated that both measures are used by a variety of individuals for a variety of reasons. It was noted on the call that measures 0357 and 0359 are to be reported as paired measures. During the related and competing measures discussion, the Committee agreed that measures 0357 and 0359 were competing against the Leapfrog measure, measure 0736: Survival predictor for abdominal aortic aneurysm (AAA). The Committee preferred the AHRQ

0359 Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11) (risk adjusted)
measures (0357 and 0359) to measure 0736 as measures 0357 and 0359 distinguished between open vs. endovascular procedures and the measures are risk adjusted. The Committee will vote on each criteria and final recommendation for endorsement of this measure following the conference call.
1. Importance to Measure and Report: Y-15; N-1 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The measure would provide key information to the public about AAA mortality. The majority of AAA repairs are done endovascularly and open repairs have become more complicated.
2. Scientific Acceptability of Measure Properties: C-10; P-6; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The developer revised the measure to reflect four strata, ruptured or unruptured aneurysms repaired by open or endovascular approaches.
3. Usability: C-14; P-2; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: This measure is in use in multiple states and healthcare systems and is reported on HCUPnet as well as used in the MONAHRQ system that is provided for public reporting and quality improvement.
4. Feasibility: C-13; P-3; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The data is derived from electronic claims.
Public and Member Comment • Related measures that should have been viewed as competing measures • Measures should include individual clinician level of measurement Related measures that should have been viewed as competing measures *Committee Response:* The Committee determined that the AAA measures (0357 and 0359) were "best-in-class". The Committee preferred these measures to the previously endorsed measure (0736) because they are risk adjusted and include more specificity since they distinguished between open vs. endovascular procedures and ruptured vs. unruptured AAA. In addition, the method of data collection varies with both using administrative data, but the Leapfrog measure does not use any patient-level data. Because measure 0736 was not under maintenance review in this project, the Committee could not make a recommendation on endorsement at this time. Measures should include individual clinician level of measurement *Committee Response:* The Committee is sensitive to a number of issues that should be considered as organizations determine at what level of analysis measures should be structured and reported. The Committee agreed that where appropriate, reporting at the clinician level is important but should be done only where the issues are carefully considered. Public reporting at the facility level may be suitable only for accountability purposes due to issues such as attribution and adequate sample size but must also be balanced with consumer desires for this type of information. The Committee strongly encourages facilities and institutions, in which the measure is currently publicly reported or used for other accountability purposes as a facility-level measure, to examine the performance at the individual clinician level for quality improvement purposes. *Measure Developer Response:* The measure was initially developed and subsequently maintained for measurement at the hospital level. Whether the measure is suitable (or could be feasibly adapted) for the unit of analysis noted by the commenter has yet to be tested by AHRQ. We will note this request for future consideration.

1523 In-hospital mortality following elective open repair of AAAs
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of aymptomatic patients undergoing open repair of abdominal aortic aneurysms (AAA)who die while in hospital. This measure is proposed for both hospitals and individual providers. Numerator Statement: Mortality following elective open repair of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs Denominator Statement: All elective open repairs of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs Exclusions: > 6 cm minor diameter - men > 5.5 cm minor diameter - women

1523 In-hospital mortality following elective open repair of AAAs

Symptomatic AAAs that required urgent/emergent (non-elective) repair

Adjustment/Stratification: No risk adjustment necessary/No stratification is required for this measure.

Level of Analysis: Can be measured at all levels, Clinicians : Group, Clinicians : Individual, Facility/ Agency

Type of Measure: Outcome

Data Source: Registry data

Measure Steward: Society for Vascular Surgery | 633 N. St. Clair, 24th floor | Chicago | Illinois | 60611

Steering Committee Recommendation for Endorsement: Y-16; N-1; A-0

Rationale: The evidence supports the measure's focus on small AAAs repairs and it provides important outcome data.

If applicable, Conditions/Questions for Developer:

Overall comment: Based on the narrow margin of the Steering Committee vote related to having met criteria for endorsement the measure will be reconsidered with the response to the questions and conditions below.

1. De2. Brief Description and 2a.1 Numerator Statement: Suggested addition of 30-day mortality with in-hospital mortality. Also, please clarify whether aneurysm size can be collected using administrative (i.e., is widely available outside the Northern New England registry), or available clinical data and the added burden of such collection.
2. 2a. Measure Specifications: Provide a timeframe for availability of newly created CPT2 codes to make this a universally applicable measure.
3. 2a.3 Numerator Details: Reword the numerator details here and throughout where registry is specified to be clear that a specific registry (i.e., SVS, VSGNE) is not required to collect the data.
4. 2b Reliability Testing and 2c Validity Testing: Advise what testing will be needed and completed for the suggested modification to 30 day mortality?
5. 2d. Exclusions: Provide reconcile sample size and data for what is being measured. Also reconcile aneurysm size in the population of interest and the sizes specified throughout.
6. 2h. Disparities in Care: Provide information about disparities or plans to be able to provide data.
7. 3a.2 Use in a Public Reporting Initiative: Please provide plans for public reporting (within 3 years).

Note: Discussion of Related and Competing measures may result in additional requests to developers specific to harmonization

Developer Response:

1. We suggest in-hospital instead of 30-day mortality for several reasons. We have previously studied mortality within the first year after open AAA repair. In-hospital mortality was 2.1% and 30-day mortality was 2.3% in VSGNE, since almost every patient who died within 30 days was never discharged. [Predicting 1-year mortality after elective abdominal aortic aneurysm repair. Beck et al, J Vasc Surg. 2009.49:838-44]. Further, in-hospital mortality is more easily obtained and audited, and is immediately available at the time of discharge. Finally, there is lower cost for obtaining in-hospital results, since subsequent patient contact after discharge is not necessary. We believe that these advantages make in-hospital mortality a more appropriate measure and have not changed this portion of the application. AAA size is readily available in the medical record, and is tracked not only in VSGNE, but the SVS VQI registry, which now comprises more than 80 centers in 30 states across the U. S., and is expected to comprise all states by 2012. The SVS VQI is the de facto national registry for vascular surgery. While AAA size cannot currently be collected using administrative data, we expect that the great majority of vascular surgeons in the U.S. will be participating in SVS VQI by 2012.
2. It is our plan to request CPT2 codes to allow coding of AAA diameter by claims data. These codes will be reviewed by the CPT Performance Measures Advisory Group's next meeting, which is scheduled for July 18-19, 2011. The CPT Editorial Panel will then have to approve the codes before they can appear in any CPT publication. The Editorial Panel will meet October 13-15, 2011.
3. Numerator and denominator have been edited to clearly state than ANY registry tracking the appropriate variables can be used for reporting all of the current measures being proposed by SVS.
4. As stated above, we have already compared in-hospital and 30-day mortality in 748 patients undergoing open elective AAA repair in VSGNE and found no advantage to using 30-day mortality, which is more difficult and more expensive to collect.
5. This section has been expanded. Data are provided for large and small AAAs, showing difference in operative mortality, emphasizing the reason for including only SMALL dia AAAs in this measure. Patients with larger diameter AAAs cannot be included without complex risk adjusting that is not available. However, data indicate that MANY small AAAs are being electively repaired, and it is in this population that a quality measure is needed. Most patients with much larger AAAs always warrant treatment, since the AAA rupture risk is so high if not treated.
6. Disparities have not been reported. As additional data are acquired from the SVS registry across a much larger and varied population, future disparities may be discovered.
7. SVS intends to request that all of these measures be included in PQRS, and expects CMS to begin publishing PQRS data in the near future. Independent of this, SVS plans to request permission from participating providers and hospitals to publish these measures on the SVS public website.

1523 In-hospital mortality following elective open repair of AAAs

Steering Committee Follow-up:
The Steering Committee expressed concern about the documentation and tracking of aneurysm size outside of the SVS registry though it was believed that this could be captured based on chart notes. The Steering Committee will have a follow-up call to review this measure as part of the AAA Repair related and competing measures once a composite has been created for measures 0357 and 0359.

On the November 29 call, during the related and competing measures discussion, the Committee determined that measures 1523 and 1534 were not competing against measures 0357, 0359 and 0736 because measures' 1523 and 1534 focus is different. The SVS measures focus on the successful outcomes of the procedure for those performed on smaller AAAs, which should only be performed if the patients are low risk and if treatment is really warranted. SVS, the developer, did indicate that they are currently expanding the data source of these two measures, measures 1523 and 1534, to include claims data. The Committee agreed to recommend measures 1523 and 1534 for endorsement as they currently stand with the expectation that the measure developer will harmonize with the AHRQ measures (0357 and 0359) if and when they revise measures 1523 and 1534 to include claims data. The Committee will vote on final recommendation for endorsement of this measure following the conference call.

1. Importance to Measure and Report: Y-18; N-3; A-0
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: The measure provides important outcome data. More AAA repairs are being conducted; although, they may not be medically necessary. However, the data provided in the measure included both small and large aneurysms, despite the stated measure's focus on only small AAAs. High mortality levels may encourage a process review.

2. Scientific Acceptability of Measure Properties: C-2; P-16; M-2; N-1
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: The Committee described the importance of extending the measure to 30-day mortality to identify adverse outcomes. The Committee stated the numerator time window, while verbally explained satisfactorily, could be confusing to users.

3. Usability: C-4; P-11; M-4; N-2
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: The data used for the measure is drawn from registry data that includes both claims and chart abstracted data thus is usable for registry participants although for non-registry participants, the data would prove challenging to collect.

4. Feasibility: C-4; P-10; M-3; N-4
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: The registry group from which data for this measure is drawn is about 10 hospitals thus information about feasibility is limited both in terms of the number of facilities in which tested and testing with only registry data. At present there is no mechanism for identifying small aneurysms with administrative data. The developer is working to develop CPT II codes that would allow aneurysm size to be captured and reported with administrative data. This would require new/additional specifications for the measure. It was noted that the measure could be revised and limited to mortality unrelated to aneurysm size that could be collected using administrative data; this would require further modification of the measure.

Public and Member Comment

- Supportive of this outcome measure that is specified to be applied at all applicable levels of measurement

Measure Developer Response: The Society of Vascular Surgery appreciates the Consumer-Purchaser Disclosure Project's support for this set of outcomes measures. SVS looks forward to working with NQF throughout the duration of the endorsement process.

1534 In-hospital mortality following elective EVAR of AAAs

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percentage of patients undergoing elective endovascular repair of asymptomatic abdominal aortic aneurysms (AAA) who die while in hospital. This measure is proposed for both hospitals and individual providers.
Numerator Statement: Mortality following elective endovascular AAA repair of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs
Denominator Statement: All elective endovascular repairs of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs
Exclusions:
A registry that includes hospitalization details, AAA diameter and discharge status is required to identify patients for denominator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England

1534 In-hospital mortality following elective EVAR of AAAs

(VSGNE) registries records such information. Patients who underwent endovascular AAA repair are included if their aneurysm was asymptomatic and small (< 6cm dia in men, <5.5 cm dia in women, judged by preoperative imaging).

Adjustment/Stratification: No risk adjustment necessary/No stratification is required for this measure.

Level of Analysis: Can be measured at all levels, Clinicians : Group, Clinicians : Individual, Facility/ Agency

Type of Measure: Outcome

Data Source: Registry data

Measure Steward: Society for Vascular Surgery | 633 N. St. Clair, 22nd Floor | Chicago | Illinois, 60611

Steering Committee Recommendation for Endorsement: Y-16; N-1; A-0

Rationale: The evidence supports the measure's focus on small AAAs repairs and it provides important outcome data.

If applicable, Conditions/Questions for Developer:

Based on the narrow margin of the Steering Committee vote related to having met criteria for endorsement, the committee will reconsider the measure with the response to the questions and conditions below.

1. De2. Brief Description and 2a.1 Numerator Statement: Suggested modification- addition of 30-day mortality with in-hospital mortality. Also, please clarify whether aneurysm size can be collected using administrative (i.e., is widely available outside the Northern New England registry), or available clinical data and the added burden of such collection.
2. 2a Measure Specifications: Scope of the measure as specified will have limited impact. Please reevaluate.
3. 2b Reliability Testing and 2c Validity Testing: Identify the testing that will need to be completed for the suggested modifications?
4. 2d. Exclusions: Provide reconcile sample size and data for what is being measured. Also reconcile aneurysm size in the population of interest and the sizes specified throughout.
5. 2h. Disparities in Care: Providing information about disparities or plans to be able to provide same.
6. 3a.2 Use in a public reporting initiative: Please provide plans for public reporting (within 3 years).

Developer Response:

1. We suggest in-hospital instead of 30-day mortality for several reasons. We have previously studied mortality within the first year after elective endovascular AAA repair. In-hospital mortality was 0.48% and 30-day mortality was 0.50% in VSGNE, since almost every patient who died within 30 days was never discharged. [Predicting 1-year mortality after elective abdominal aortic aneurysm repair. Beck et al, J Vasc Surg. 2009.49:838-44]. Further, in-hospital mortality is more easily obtained and audited, and is immediately available at the time of discharge. Finally, there is lower cost for obtaining in-hospital results, since subsequent patient contact after discharge is not necessary. We believe that these advantages make in-hospital mortality a more appropriate measure and have not changed this portion of the application. AAA size is readily available in the medical record, and is tracked not only in VSGNE, but the SVS VQI registry, which now comprises more than 80 centers in 30 states across the U. S., and is expected to comprise all states by 2012. The SVS VQI is the de facto national registry for vascular surgery. While AAA size cannot currently be collected using administrative data, we expect that the great majority of vascular surgeons in the U.S. will be participating in SVS VQI by 2012.
2. We are not certain as to the exact specification within 2a to which this comment is applied. However, we disagree that this measure will have limited impact. Most AAAs are small when detected, and there is a general suspicion that too many small AAAs are being repaired unnecessarily, with a resulting unnecessary operative mortality. This measure will focus attention on the elective mortality rate of endovascular AAA repair in these patients. Although the median mortality rate is low in VSGNE, there is significant variation among hospitals, and large clinical trials have documented this mortality to be 2-3%, even for small AAAs. If 10,000 patients per year in the US undergo unnecessary endovascular repair of such small AAAs, a 3% mortality results in 300 avoidable deaths. This is an important quality measure, and needs to be established in parallel with our open AAA repair measure, so that surgeons performing AAA repair can/must report their outcomes independent of which technique they use. We have not changed the measure form, because it was not clear where to insert this information.
3. As stated above, we have already compared in-hospital and 30-day mortality in 639 patients undergoing elective endovascular AAA repair in VSGNE and found no advantage to using 30-day mortality, which is more difficult and more expensive to collect.
4. This section has been expanded. Data are provided for large and small AAAs, showing difference in operative mortality, emphasizing the reason for including only SMALL dia AAAs in this measure. Patients with larger diameter AAAs cannot be included without complex risk adjusting that is not available. However, data indicate that MANY small AAAs are being electively repaired, and it is in this population that a quality measure is needed. Most patients with much larger AAAs always warrant treatment, since the AAA rupture risk is so high if not treated.
5. Disparities have not been reported. As additional data are acquired from the SVS registry across a much larger and varied population, future disparities may be discovered.
6. SVS intends to request that all of these measures be included in PQRS, and expects CMS to begin publishing PQRS data in the near future. Independent of this, SVS plans to request permission from participating providers and hospitals to publish these measures on the SVS public website.

1534 In-hospital mortality following elective EVAR of AAAs

Steering Committee Follow-up:
The Steering Committee expressed concern about the documentation and tracking of aneurysm size outside of the SVS registry. The Steering Committee will have a follow-up call to review this measure as part of the AAA Repair related and competing measures once a composite has been created for measures 0357 and 0359.

On the November 29 call, during the related and competing measures discussion, the Committee decided that measures 1523 and 1534 were not competing against measures 0357, 0359 and 0736 because measures' 1523 and 1534 focus is different. The SVS measures focus on the successful outcomes of the procedure for those performed on smaller AAAs, which should only be performed if the patients are low risk and if treatment is really warranted. SVS, the developer, did indicate that they are currently revising the data source of these two measures, measures 1523 and 1534, to include claims data. The Committee agreed to recommend measures 1523 and 1534 for endorsement as they currently stand with the expectation that the measure developer will harmonize with the AHRQ measures (0357 and 0359) if and when they revise measures 1523 and 1534 to include claims data. The Committee will vote on final recommendation for endorsement of this measure following the conference call.

1. Importance to Measure and Report: Y-21; N-0 ; A-0
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: The measure provides important outcome data. More AAA repairs are being conducted; although, they may not be medically necessary. However, the data provided in the measure included both small and large aneurysms, despite the measure's focus on only small AAAs. High mortality levels may encourage a process review.

2. Scientific Acceptability of Measure Properties: C-5; P-13; M-3; N-0
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: The Committee discussed the importance of extending the measure to 30-day mortality to identify adverse outcomes. The Committee stated that the time window may be confusing.

3. Usability: C-3; P-15; M-2; N-1
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: In the future the measure could be adjusted to be applicable for other procedures.

4. Feasibility: C-5; P-10; M-5; N-1
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: The measure did not provide wide spread testing data and may not be feasible without the registry. The developer is attempting to create CPT II codes to facilitate use beyond the registry in the future.

Public and Member Comment

- Supportive of this outcome measure that is specified to be applied at all applicable levels of measurement

Measure Developer Response: The Society of Vascular Surgery appreciates the Consumer-Purchaser Disclosure Project's support for this set of outcomes measures. SVS looks forward to working with NQF throughout the duration of the endorsement process.

1540 Postoperative stroke or death in asymptomatic patients undergoing carotid endarterectomy

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percentage of patients age 18 or older without carotid territory neurologic or retinal symptoms within the one year immediately preceding carotid endarterectomy (CEA) who experience stroke or death following surgery while in the hospital. This measure is proposed for both hospitals and individual surgeons.
Numerator Statement: Patients age 18 or older without preoperative carotid territory neurologic or retinal sympotoms within the one year immediately preceding CEA who experience stroke or death during their hospitalization following carotid endarterectomy
Denominator Statement: Asymptomatic patients (based on NASCET criteria) on the within one year of CEA
Exclusions: Exclude patients with neurologic symptoms within one year of procedure
Adjustment/Stratification: No risk adjustment necessary/No stratification is required for this measure.
Level of Analysis: Facility/ Agency, Clinicians: Individual, Clinicians: Group
Type of Measure: Outcome
Data Source: Registry data
Measure Steward: Society for Vascular Surgery | 633 N. St. Clair, 22nd St. | Chicago | Illinois, 60611

Steering Committee Recommendation for Endorsement: Y-21; N-0; A-1
Rationale: The measure will help determine the incidence of adverse outcomes in the asymptomatic patient undergoing what is

1540 Postoperative stroke or death in asymptomatic patients undergoing carotid endarterectomy
essentially a prophylactic procedure.
If applicable, Conditions/Questions for Developer: 1. 2a Measure Specifications: Provide information about type and accuracy of codes from registry data? Provide the codes. Diagnostic codes must be used and will need to ensure testing with these codes is complete. 2. 2h. Disparities in Care: Provide information about disparities or plans to be able to provide data. 3. 3a.2 Use in a Public Reporting Initiative: Please provide plans for public reporting (within 3 years). Developer Response: 1. As indicated in the list of previously provided registry variables that was attached to the last submission, post-operative stroke (major or minor) and death are recorded in the SVS registry. These are not derived from ICD-9 codes, but rather are directly obtained by review of the medical record, usually during the time of admission by clinical personnel. Definitions for these variables were also reported. We are not certain which "codes" are being referred to, since this is a registry measure defined by clinical definitions within the registry, or any other available registry that records postoperative stroke (major or minor) and death in asymptomatic patients undergoing carotid endarterectomy. 2. Disparities have not been reported. As additional data are acquired from the SVS registry across a much larger and varied population, future disparities may be discovered. 3. SVS intends to request that all of these measures be included in PQRS, and expects CMS to begin publishing PQRS data in the near future. Independent of this, SVS plans to request permission from participating providers and hospitals to publish these measures on the SVS public website. Steering Committee Follow-up: The Steering Committee discussed the importance of the measure. Carotid endarterectomy may be over utilized in asymptomatic patients. The Committee agreed that the response from the developer was adequate.
1. Importance to Measure and Report: Y-20; N-1 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The Committee considered the outcomes resulting from the asymptomatic patient undergoing carotid endarterectomy important to measure.
2. Scientific Acceptability of Measure Properties: C-6; P-14; M-1; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The Committee noted the need to define and specify methods to document (e.g., ICD-9 coding, potential development and use of CPT-II codes) asymptomatic and then to standardize the definition. There was concern about whether the measure is, in fact, measuring what is intended. With the information that definitions for the variables are reported and further discussion, the concern was adequately addressed.
3. Usability: C-5; P-14; M-1; N-1 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The Committee was unclear about the details of the measure steward's plan for publicly reporting the measure. The developer indicated that they will request that the measure be included in PQRS.
4. Feasibility: C-4; P-13; M-3; N-1 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: Concerns relate to capture of 'asymptomatic'. The Committee was interested in the potential of future CPT-II codes in this regard.
Public and Member Comment It was suggested that the measure would be more meaningful if the measure scope included additional adverse outcomes. The Committee suggested in future updates of the measure, that the developer consider inclusion of additional adverse outcomes including myocardial infarction.

1543 Postoperative stroke or death in asymptomatic patients undergoing carotid artery stenting (CAS)
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of patients 18 years of age or older without carotid territory neurologic or retinal symptoms within 120 days immediately proceeding carotid angioplasty and stent (CAS) placement who experience stroke or death during their hospitalization for this procedure. This measure is proposed for both hospitals and individual interventionalists. Numerator Statement: Patients over age 18 without preoperative carotid territory neurologic or retinal sympotoms within one year of their procedure who experience stroke or death during their hospitalization following elective carotid artery angioplasty and stent

1543 Postoperative stroke or death in asymptomatic patients undergoing carotid artery stenting (CAS)

placement

Denominator Statement: Patients over age 18 without preoperative carotid territory neurologic or retinal symptoms within one year immediately preceding carotid artery stenting

Exclusions: Exclude patients with neurologic symptoms within one year of procedure

Adjustment/Stratification: No risk adjustment necessary/No stratification is required for this measure.

Level of Analysis: Facility/ Agency, Clinicians: Individual, Clinicians: Group

Type of Measure: Outcome

Data Source: Registry data

Measure Steward: Society for Vascular Surgery | 633 N. St. Clair, 22nd floor | Chicago | Illinois, 60611

Steering Committee Recommendation for Endorsement: Y-21; N-0; A-1

Rationale: The measure will help determine the incidence of adverse outcome in the asymptomatic patient undergoing what is essentially a prophylactic procedure.

If applicable, Conditions/Questions for Developer:

The Committee suggested that measures related to carotid artery stenting be developed in conjunction with other specialties that perform the procedures; i.e., radiologists and cardiologists.

Developer Response:

1. The measure proposed for carotid artery stenting is identical to the measure proposed for carotid endarterectomy, two competing procedures used to treat the same disease. By limiting the measure to asymptomatic patients, we are eliminating the need for risk adjustment, since this is embodied in the decision to perform these prophylactic procedures to prevent future stroke, i.e., the operative risk of stroke and death must be certain to be low in order to justify these procedures. Stroke and death is the combined endpoint used in all randomized trials of these procedures, and we believe it is critically important that surgeons who perform carotid endarterectomy and stenting should report their outcomes for BOTH of these procedures. Since this is such a clean outcome measure, without need for risk adjustment, we do not believe that its approval should be withheld because it has not yet been proposed by other specialties. In fact, SVS VQI has surgeons and radiologists who participate and support an outcome measure for both carotid endarterectomy and stenting. We respectfully ask the committee to approve both of these important measures in parallel. The form has been updated to reflect relevant comments provided for other SVS measures.

Steering Committee Follow-up:

The Steering Committee agreed that the response from the developer was adequate and suggested that SVS work to develop measures with other specialties in the future.

1. Importance to Measure and Report: Y-21; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: The Committee considered the outcomes resulting from the asymptomatic patient undergoing carotid artery stenting important to measure.

2. Scientific Acceptability of Measure Properties: C-6; P-14; M-1; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale: The Committee noted the need to define and specify methods to document (e.g., ICD-9 coding, potential development and use of CPT-II codes) asymptomatic and then to standardize the definition. With the information that definitions for the variables are reported and further discussion, the concern was adequately addressed.

3. Usability: C-6; P-13; M-1; N-1

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale: The Committee was unclear about the public reporting plan. The developer indicated that the measure is to be reported with 1540 and will request inclusion in PQRS.

4. Feasibility: C-6; P-11; M-3; N-1

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale: Concerns relate to capture of 'asymptomatic'. The Committee was interested in the potential of future CPT-II codes in this regard.

Public and Member Comment

It was suggested that the measure would be more meaningful if the measure scope included additional adverse outcomes. The Committee suggested in future updates of the measure, that the developer consider inclusion of additional adverse outcomes including myocardial infarction.

Measures not Recommended for Endorsement:

1531 Follow-up assessment of stroke or death after carotid revascularization
For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Proportion of patients with carotid revascularization procedures who had follow-up performed for evaluation of death and neurologic assessment with an NIH Stroke Scale (by an examiner who is certified by the American Stroke Association) between 14 and 60 days after the procedure. Numerator Statement: Patients with documentation of a follow-up assessment between 14 and 60 days after the date of carotid revascularization for both: 1. Neurologic status with an assessment using the NIH Stroke Scale (by an examiner who is certified by the American Stroke Association), AND 2. Vital Status (alive or expired) Denominator Statement: Patients with carotid revascularization (surgery or stent) procedures Exclusions: Patients with pre-procedure conditions of: 1. Acute evolving stroke, or 2. Carotid artery dissection Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Facility/ Agency Type of Measure: Process Data Source: Registry data Measure Steward: American College of Cardiology Foundation (ACCF) | 2400 N Street NW | Washington | District Of Columbia, 20037
Steering Committee Recommendation for Endorsement: Y-9; N-12; A-0 Rationale: Two issues were key: 1) there is little evidence that this process measure is strongly linked to improvement in outcome, and 2) the likelihood of being able to retrieve the information and that of requirement that assessment be done by an American Stroke Association certified examiner. With respect to the latter, there was question about comparability of baseline and post procedure testing. The Steering Committee recognized the importance of having a standardized form of assessment for stroke or death after carotid revascularization. They continued to express concern about the feasibility of the data collection and the independent assessment. Hospitals would be responsible for collecting the data. It was explained that the assessment could take place at a post-operative visit and the independent examiner could be a variety of medical personnel certified through an online course. The Steering Committee also discussed whether the measure had a link to an improvement in outcomes. Though all concerns were not alleviated, they concluded that such a measure could encourage a standardized neurological assessment to be conducted, which could indicate whether an improvement needed to take place. Submission of Request for Reconsideration: The request for reconsideration was reviewed by the Consensus Standards Approval Committee (CSAC) co-chairs and it was determined to uphold the Committee's decision to not recommend the measure. NQF strongly encourages the ACCF to bring this measure back for consideration in the future when further evidence of the process to outcome connection can be validated.
If applicable, Conditions/Questions for Developer: 1. 2a.1 Numerator Statement: Reconsider the window of time within which assessment must be completed, including consideration of assessment prior to 21 days. 2. 2b Reliability Testing: Please provide reliability testing information addressing, with specifics, each required item. 3. 2c.3 Validity Testing Results: Please provide information regarding how the testing compares with the relevant evidence and guidelines. Developer Response: 1. Numerator statement – assessment prior to 21 days: The measure developers reconsidered the window of time for assessment and decided to maintain the current period for assessment between 21 and 60 days for several reasons. First, major contemporary trials used 30 day events as primary endpoints for outcomes, which included neurologic assessment to identify stroke. Based on these trial endpoints, the developers felt a follow-up timeframe <21 days would miss the identification of new neurological events that trigger the need for further evaluation from a neurologist. Second, a structured timeframe, consistent with contemporary trials, provides a more accurate comparison of rates of assessment and outcomes between facilities providing carotid revascularization procedures. Finally, testing of the measure indicated only 2% of patients submitted with follow-up records had an assessment timeframe of

<21 days.

2. Reliability Testing:

2b. Reliability testing:

2b.1 Data/sample *(description of data/sample and size)*:

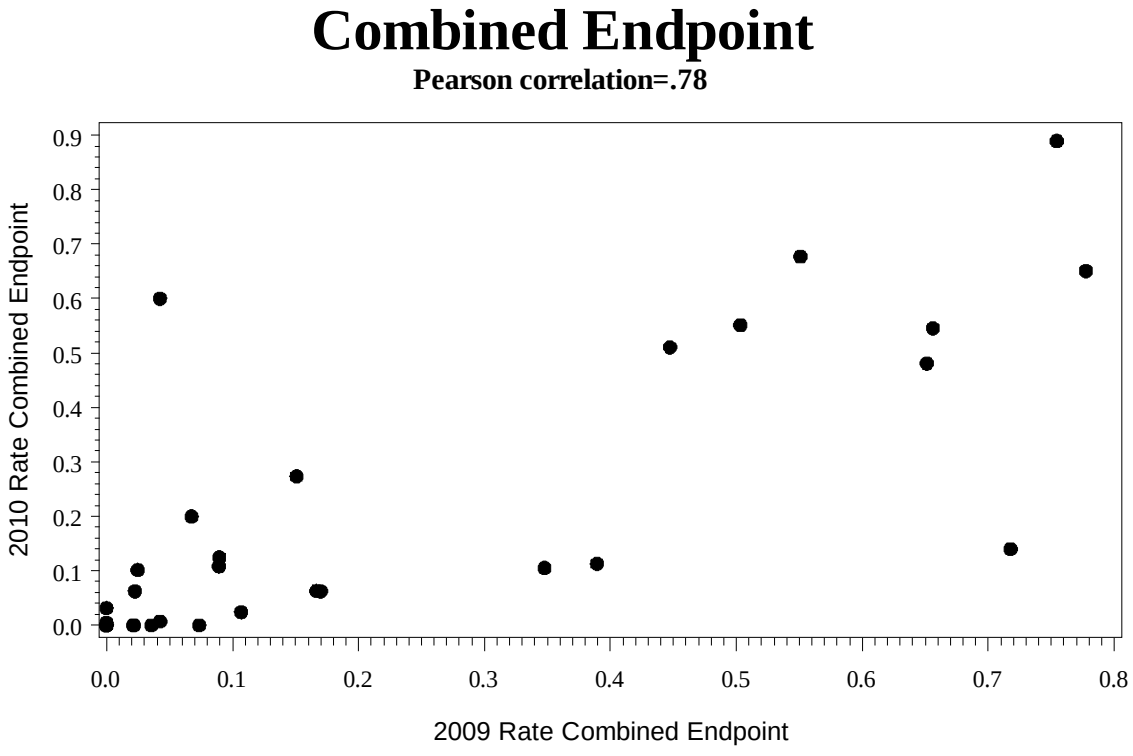
Data were compared for 33 hospitals with 30 or more procedures for a 12 month period from January 2009 to December 2009 and from January 2010 and January 2010.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)*:

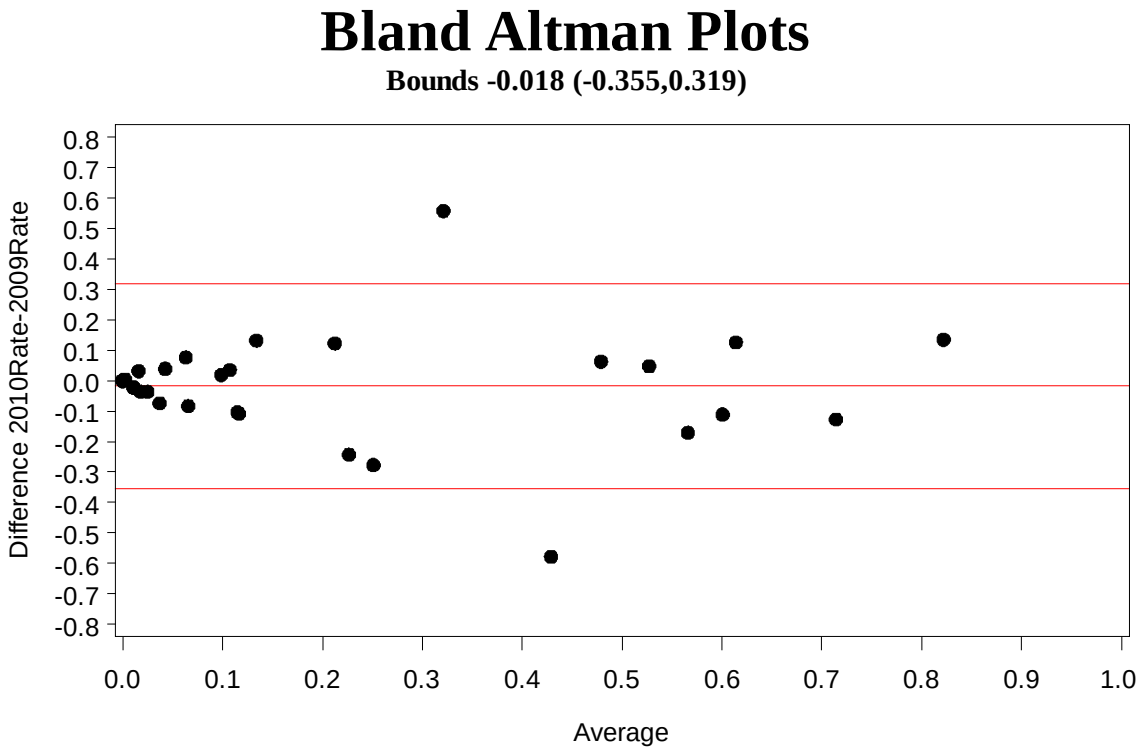
Results were compared for two proximate time periods: January 2009 to December 2009 and from January 2010 to December 2010. Hospitals were excluded if they did not have data for both time periods, or if they did not perform 30 or more procedures during this time period. A simple scatter plot to assess correlation of follow-up rates for these hospitals for the 2 time periods was developed, as well as a Bland-Altman plot to show the range of hospital change in performance for these two time periods.

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:

See below. The correlation coefficient observed was 0.78. The average change in performance was -0.018, with a 95% confidence interval of 0.347 to 0.311, showing very good reliability of data over time.

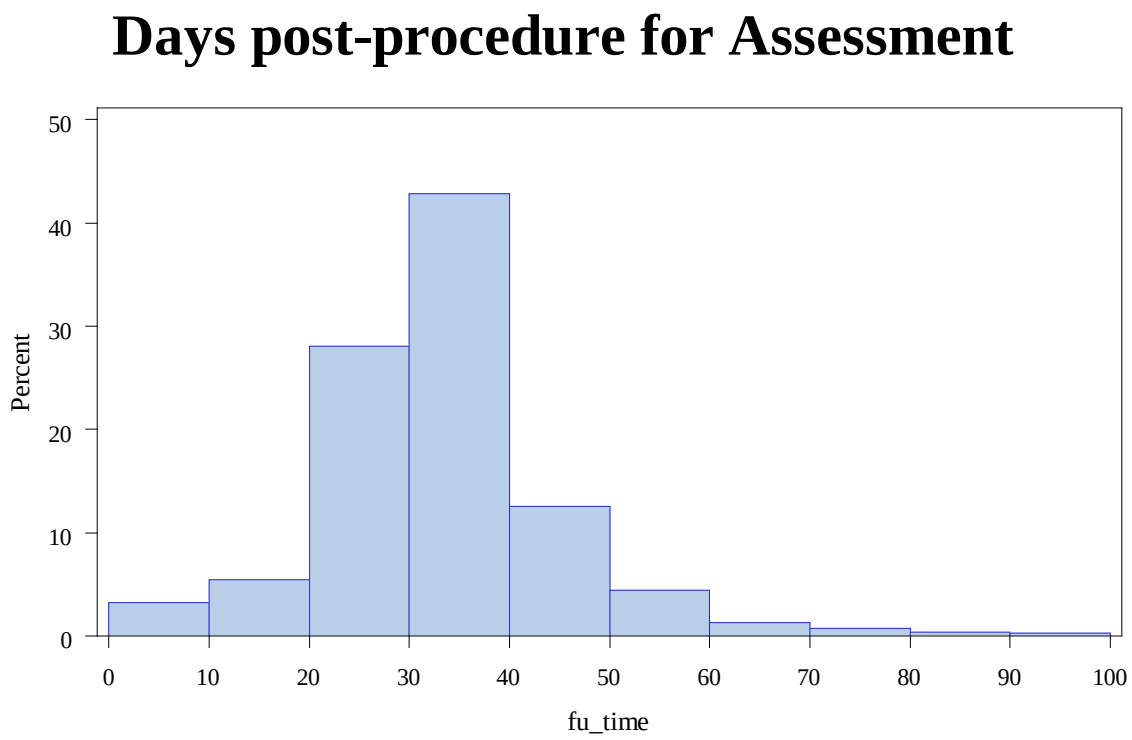


1531 Follow-up assessment of stroke or death after carotid revascularization



3. Validity Testing Results: Major contemporary trials used 30 day assessment of primary endpoints for outcomes, which included neurologic assessment to identify stroke. Measure testing demonstrated three things: 1) the CARE Registry dataset has the data elements to accurately measure and report this process of care; 2) a gap in care exists with regard to assessment and reporting around the 30 day outcome endpoint consistent with published literature; and 3) among the patients who had follow-up, nearly all of them had follow-up during the timeframe of 21-60 days (see below diagram - 2.2% had follow-up performed <21 days and 0.76% had follow-up >60 days).

1531 Follow-up assessment of stroke or death after carotid revascularization



1. Importance to Measure and Report: Y-13; N-8
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: The Steering Committee recognized the importance of having a standardized way of conducting a neurologic assessment of stroke or death after carotid revascularization but expressed concern about whether there is a direct link to improvement in outcomes.

2. Scientific Acceptability of Measure Properties: C-4; P-12; M-3; N-2
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: The Steering Committee reviewed the requirement that the assessment be conducted by an independent examiner. Although the developer indicated that the assessment could take place at a post-operative visit and the independent examiner could be a variety of medical personnel certified through an online course; the Committee was still concerned with the notion of the requirement of the NIHSS stroke scale certification to conduct the assessment.

3. Usability: C-3; P-11; M-5; N-2
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: The Steering Committee stated that the measure would promote gathering standardized assessment information which could be used for quality improvement.

4. Feasibility: C-2; P-10; M-5; N-4
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: The Steering Committee was concerned about the feasibility and burden of data collection on organizations for capturing the assessment at the follow-up visit since the assessment does not occur during hospitalization.

Public and Member Comment

- Standardized data helpful in the decision-making process for both patients and physicians; and
- Improves outcomes for carotid revascularization

The Steering Committee determined that such a measure could encourage standardized neurologic assessment and strongly supports the concept underlying the measure. Its concerns are that a) there is little evidence that this process measure, as constructed, is strongly linked to improvement in outcome; b) data ascertainment may not be uniformly possible and c) baseline and post procedure testing given post-procedure assessment requirements may not be comparable. The committee encourages the developer to continue

1531 Follow-up assessment of stroke or death after carotid revascularization
its effort to refine the measure for practical implementation, including submission for inclusion in PQRS, and bring the refined measure to NQF for endorsement. The Committee did not change its recommendation. The request for reconsideration submitted by the measure developer was completed by the CSAC co-chairs.

1548 Surveillance after endovascular abdominal aortic aneurysm repair (EVAR)
For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of patients 18 years of age or older undergoing endovascular abdominal aortic aneurysm repair who have at least one follow-up imaging study after 3 months and within 15 mos of EVAR placement that documents aneurysm sac diameter and endoleak status. This measure is proposed for individual providers. Numerator Statement: Patients 18 years or older undergoing EVAR who have at least one follow-up CTA, duplex, or MRA of the abdomen and pelvis after 3 months but within 15 months of placement, assessing for sac size and endoleak Denominator Statement: Patients 18 years or older undergoing EVAR for abdominal aortic aneurysms excluding patients who died prior to follow-up within 15 months postoperatively. Exclusions: Death of patient as recorded in registry before follow-up imaging could be obtained during the first 15 months after EVAR. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) registries record this information. Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Can be measured at all levels; Clinicians: Individual; Clinicians: Group Type of Measure: Process Data Source: Registry data Measure Steward: Society for Vascular Surgery | 633 N. St. Clair, 22nd floor | Chicago | Illinois, 60611
Steering Committee Recommendation for Endorsement: Y-5; N-15; A-1 Rationale: While the measure highlights opportunities for improvement and the surveillance data could provide key information on the EVAR follow up, the reasons why surveillance is not completed are varied. As one example, patients may not report for follow up because of travel costs associated with returning for scans. The Committee expressed concern about the way the measure would be used and what its importance would be since there are many reasons (including socioeconomic) why patients do not have scans.
If applicable, Conditions/Questions for Developer: Developer Response: If applicable, Questions to the Steering Committee:
1. Importance to Measure and Report: Y-20; N-1 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The measure cited endograft surveillance performance rates from two major medical centers. One center had a 50 percent endograph surveillance rate, while the other had a performance rate of 75 percent. These statistics indicate an opportunity for improvement.
2. Scientific Acceptability of Measure Properties: C-3; P-15; M-3; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: Concerns included the variety of reasons why a patient might not have follow up testing that cannot be differentiated by the measure; controversy about best imaging strategy and the identified timeframe that will not capture all appropriately completed testing
3. Usability: C-3; P-15; M-3; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The Committee was unclear about how the measure would be publicly reported and what unintended consequences could result given that the provider plan for follow up is subject to patient action, which can be influenced by a number of things including socioeconomic factors.
4. Feasibility: C-3; P-11; M-5; N-2 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The measure was considered feasible in that, while the measure uses registry data, it could be applied, outside the registry, using administrative data.
Public and Member Comment Commenters believed this measure was important to measure and report. The Steering Committee agreed that the measure focus is important but had significant concerns related to inability to discern reasons that follow up testing is not completed therefore it is not actionable as specified and, depending on how used/reported, could lead to unintended consequences. The committee encourages the

1548 Surveillance after endovascular abdominal aortic aneurysm repair (EVAR)
developer to look to the potential of submitting a refined measure as part of PQRS to ease data capture. The Committee did not change its recommendation.

ESOPHAGEAL RESECTION and TRANSFUSION

Endorsed Measures:

0360 Esophageal resection mortality rate (IQI 8)
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Number of inpatient deaths per 100 discharges with a procedure for esophageal resection Numerator Statement: Number of deaths among cases meeting the inclusion and exclusion rules for the denominator. Denominator Statement: Discharges, age 18 years and older, with ICD-9-CM esophageal resection procedure code and a diagnosis code of esophageal cancer in any field OR gastrectomy procedure code ONLY if accompanied by selected diagnosis codes. Exclusions: Exclude discharges with pregnancy, discharge to a short term hospital or missing information for discharge disposition, age or sex. Adjustment/Stratification: case mix adjustment/Observed rates may be stratified by age group, race/ethnicity categories, payer categories and sex. Level of Analysis: Facility/Agency Type of Measure: Outcome Data Source: Electronic administrative data/claims Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850
Steering Committee Recommendation for Endorsement: Y-20; N-0; A-0 Rationale: Numerous studies have demonstrated a high variability in surgical mortality, largely influenced by hospital volume. The adoption of such a measure would encourage quality improvement at low-volume centers, or patients seeking care at centers with better results. Continued measurement and reporting of this measure is warranted as it will help advance the understanding of variations in outcome for esophageal resection and identify best practices. For reporting, this measure is to be paired with 0361, Esophageal resection volume . In considering potential harmonization with NQF-endorsed™ Measure 0737, Survival predictor for esophagectomy surgery, the Committee determined that the measure differences support maintaining the measures without harmonization work at this time.
If applicable, Conditions/Questions for Developer: Endorsement recommendation is based on developer commitment to ensure that the 0360 and 0361 are harmonized and reported as a pair.
1. Importance to Measure and Report: Y-18; N-4 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: Esophagectomy for cancer carries a high risk of mortality given the magnitude of the procedure and the high risk population in which it is performed.
2. Scientific Acceptability of Measure Properties: C-3; P-16; M-2; N-1 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: While this is an important measure, the relatively low volume of esophagectomies performed on an annual basis will make inter-hospital comparisons statistically difficult, especially for low-volume centers.
3. Usability: C-6; P-13; M-1; N-2 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The Committee discussed the issue of low-volume centers and if their mortality could adequately predict future mortality. Concerns of consumers misinterpreting the data of low-volume centers were expressed.
4. Feasibility: C-17; P-4; M-1; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The information is derived from electronic administrative data/claims.
Public and Member Comments No comments were received on this measure.

0361 Esophageal resection volume (IQI 1)
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Number of discharges with a procedure for esophageal resection. Numerator Statement: Discharges, age 18 years and older, with ICD-9-CM code for esophageal resection in any procedure field OR gastrectomy procedure code ONLY if accompanied by selected diagnosis codes. Denominator Statement: N/A Exclusions: N/A Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Facility/Agency Type of Measure: Structure/management Data Source: Electronic administrative data/claims Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850
Steering Committee Recommendation for Endorsement: Y-20; N-0; A-0 Rationale: Numerous studies have demonstrated high variability in surgical mortality, largely influenced by hospital volume. The adoption of such a measure would encourage quality improvements at low-volume centers, or patients seeking care at centers with better results. Continued measurement and reporting of this measure is warranted as it will help advance our understanding of variations in outcome for esophageal resection and identify best practices. For reporting, this measure is to be paired with 0360, Esophageal resection mortality rate..
If applicable, Conditions/Questions for Developer: Endorsement recommendation is based on developer commitment to ensure that the 0360 and 0361 are harmonized and reported as a pair.
1. Importance to Measure and Report: Y-18; N-4 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: Esophagectomy for cancer carries a high risk of mortality given the magnitude of the procedure and the high risk population in which it is performed.
2. Scientific Acceptability of Measure Properties: C-8; P-11; M-3; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: Mortality rates provide more valuable information than volume. The Committee questioned if this measure was necessary since volume is a proxy for mortality and decided the measure is appropriately used and reported but should remain paired with 0360 and not reported as a stand-alone.
3. Usability: C-7; P-14; M-1; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: Concerns of consumers misinterpreting the data of low-volume centers were expressed.
4. Feasibility: C-17; P-5; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The information is derived from electronic administrative data/claims.
Public and Member Comments No comments were received on this measure.

GENERAL, OPHTHALMOLOGY, ORTHOPEDICS and PEDIATRICS

Endorsed Measures:

0339 RACHS-1 pediatric heart surgery mortality
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Risk-adjusted rate of in-hospital death for pediatric cases undergoing surgery for congenital heart disease, along with ratio of observed to expected in-hospital mortality rates. Numerator Statement: Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator with a code of pediatric heart surgery with ICD-9-CM diagnosis of congenital heart disease in any field.

0339 RACHS-1 pediatric heart surgery mortality

Denominator Statement: Discharges under age 18 with ICD-9-CM procedure codes for congenital heart disease (1P) in any field or non-specific heart surgery (2P) in any field with ICD-9-CM diagnosis of congenital heart disease (2D) in any field.

Exclusions: Exclude cases:

• MDC 14 (pregnancy, childbirth and pueperium)
• with transcatheter interventions (either 3AP, 3BP, 3CP, 3DP, 3EP with 3D, or 3FP) as single cardiac procedures, performed without bypass (5P) but with catheterization (6P)
• with septal defects (4P) as single cardiac procedures without bypass (5P)
• with diagnosis of ASD or VSD (5D) with PDA as the only cardiac procedure
• heart transplant (7P)
• premature infants (4D) with PDA closure (3D and 3EP) as only cardiac procedure;
• age less than or equal to 30 days with PDA closure as only cardiac procedure
• missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing)
• transferring to another short-term hospital (DISP=2)
• neonates with birth weight less than 500 grams (Birth Weight Category 1)

Adjustment/Stratification: risk adjustment method widely or commercially available PDI: The predicted value for each case is computed using a logistic regression with Generalized Estimating Equations (GEE) to account for within hospital correlation containing RACHS-1 risk category; age category (<= 28 days, 29 to 90 days, 91 days to 1 year, 1 to 17 years); birth weight <2500 grams; non-cardiac structural anomaly (modified CCS 217); admission transferred in; and combination of congenital heart surgery procedures performed during admission. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2008 (updated annually), a database consisting of 43 states and approximately 7 million pediatric discharges. 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 (standardized mortality ratio), multiplied by the reference population rate.
The model includes additional covariates for RACHS-1 risk categories, and multiple congenital heart procedures during the admission. Required data elements: Age in days up to 364, then age years at admission; International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) principal and secondary diagnosis codes; admission type; admission source. The user has the option to stratify by gender, birth weight, age in days, age in years, race / ethnicity, primary payer, and custom stratifiers./ The user has the option to stratify by gender, birth weight, age in days, age in years, race/ ethnicity, primary payer, and custom stratifiers.

Level of Analysis: Facility/ Agency

Type of Measure: Outcome

Data Source: Electronic administrative data/ claims

Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850

Steering Committee Recommendation for Endorsement: Y-24; N-0; A-0

Rationale: Measuring pediatric heart surgery mortality is important and the measure is valid and meets criteria RACHS is supported in the literature.

If applicable, Conditions/Questions for Developer:

1. This measure and Measure 0340 should continue to be reported as a pair.

Developer Response:

1. AHRQ agrees to continue to note the Pediatric heart surgery mortality and volume (339 and 340 respectively) are to be reported as a paired measure in related AHRQ QI documents.

Steering Committee Follow-up:

At the Steering Committee's request, the developer explained that they were working to combine measures *0339: Pediatric heart surgery mortality (PDI 6) (risk adjusted)* and *PCS-021-09: Standardized mortality ratio for congenital heart surgery, risk adjustment for congenital heart surgery (RACHS-1) adjusted*) for submission by August 15, 2011.

On the September 13 conference call, the Steering Committee reviewed this newly combined measure which represents the harmonization of the former 0339 and PCS-021-09. Members determined that it adequately addressed their request and met criteria. The developer indicated that this measure remains appropriate to be paired with measure *340: Pediatric Heart Surgery Volume (PDI 7)*,

1. Importance to Measure and Report: Y-22; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: The measure was considered important and the performance gap suggests room for improvement. The Committee requested timely updated citations in the future.

2. Scientific Acceptability of Measure Properties: C-17; P-5; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f.

0339 RACHS-1 pediatric heart surgery mortality
Meaningful differences; 2g. Comparability; 2h. Disparities) Rationale: The measure was considered scientifically acceptable.
3. Usability: C-17; P-5; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: This measure has been in wide use over a number of years and is considered usable.
4. Feasibility: C-19; P-3; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: This measure uses claims data thus was considered feasible.
Public and Member Comment • Should apply at the clinician level of analysis; and • No description of the risk adjustment model The developer has yet to have the opportunity to test the application of the measure at the clinician level. The Committee is sensitive to a number of issues that should be considered as organizations determine at what level of analysis measures should be structured and reported. The Committee believes it is appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues.

0340 Pediatric heart surgery volume (PDI 7)
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Number of discharges with procedure for pediatric heart surgery Numerator Statement: Discharges under age 18 with ICD-9-CM procedure codes for either congenital heart disease (1P) in any field or non-specific heart surgery (2P) with ICD-9-CM diagnosis of congenital heart disease (2D) in any field. Denominator Statement: This measure does not have a denominator due to the fact it is a volume measure. Exclusions: Not applicable. This measure does not have a denominator due to the fact it is a volume measure. Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Facility/ Agency Type of Measure: Structure/management Data Source: Electronic administrative data/ claims Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850
Steering Committee Recommendation for Endorsement: Y-17; N-1; A-3 Rationale: The measure was considered important, valid and meets criteria.
If applicable, Conditions/Questions for Developer: 1. This measure and Measure 0339 should continue to be reported as a pair. Developer Response: 1. AHRQ agrees to continue to note the Pediatric heart surgery mortality and volume (339 and 340 respectively) are to be reported as a paired measure in related AHRQ QI documents. Steering Committee Follow-up: The Steering Committee agreed that the response from the developer was adequate.
1. Importance to Measure and Report: Y-14; N-5 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The Committee noted the performance gap, which showed that the risk-adjusted mortality is higher at hospitals with fewer than 100 cases per year. The Committee requested timely updated citations in the future.
2. Scientific Acceptability of Measure Properties: C-10; P-8; M-1; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: This reporting of pediatric heart surgery volume alone may not be valid since it occurs in small numbers. Additionally, pediatric heart surgery has become regionalized and is conducted at relatively few institutions.
3. Usability: C-10; P-8; M-1; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: This measure has been in wide use over a number of years and is considered usable.
4. Feasibility: C-13; P-6; M-0; N-0

0340 Pediatric heart surgery volume (PDI 7)

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale: This measure uses claims data thus was considered feasible.

Public and Member Comment

- Should apply at the clinician level of analysis; and
- Concerns of supporting volume as a stand-alone performance measure

Level of Analysis

The developer has yet to have the opportunity to test the application of the measure at the clinician level. The Committee is sensitive to a number of issues that should be considered as organizations determine at what level of analysis measures should be structured and reported. The Committee believes it is appropriate to consider clinician level reporting where appropriate after consideration of the attendant issues.

Concerns as a Stand-Alone Measure

This measure was initially endorsed to be reported as a pair with measure 0339. The recommendation is that it be continued to be reported as a pair.

0352 Failure to rescue in-hospital mortality (risk adjusted)

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percentage of patients who died with a complications in the hospital.

Numerator Statement: Patients who died with a complication plus patients who died without documented complications. Death is defined as death in the hospital.

All patients in an FTR analysis have developed a complication (by definition).

Complicated patient has at least one of the complications defined in Appendix B(see website http://www.research.chop.edu/programs/cor/outcomes.php). Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission.

Comorbidities are defined in Appendix C (see website http://www.research.chop.edu/programs/cor/outcomes.php) using secondary ICD9 diagnosis codes of the current admission and primary or secondary ICD9 diagnosis codes of previous admission within 90 days of the admission date of the current admission.

*When physician part B is available, the definition of complications and comorbidities are augmented to include CPT codes.

Denominator Statement: General Surgery, Orthopedic and Vascular patients in specific DRGs with complications plus patients who died in the hospital without complications.

Inclusions: adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see appendix A http://www.research.chop.edu/programs/cor/outcomes.php)

Exclusions: Patients over age 90, under age 18.

Adjustment/Stratification: risk-adjustment devised specifically for this measure/condition Risk Adjustment: Model was developed using logistic regression analysis.

Associated data elements: age in years, sex, race, comorbidities, DRGs (combined with and without complications) and procedure codes within DRGs, transfer status.

Failure to rescue is adjusted using a logistic regression model where y is a failure and the total N is composed of patients who develop a complication and patients who died without a complication.

According to developer: The model adjustment variables can vary. We have found that FTR results are fairly stable, even with little adjustment, since all patients in an FTR analysis have developed a complication (by definition), they are a more homogeneous group of patients than the entire population. Hence severity adjustment plays somewhat less of a role than in other outcome measures/Complicated patient has at least one of the complications defined in Appendix B (http://www.research.chop.edu/programs/cor/outcomes.php) Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission. When Physician Part B file is available, the definition of complications and comorbidities are augmented to include CPT codes.

Level of Analysis: Facility/ Agency, Health Plan, Integrated Delivery System, Population: Counties or cities, Population: National, Population: Regional/ network, Population: States

Type of Measure: Outcome

Data Source: Electronic administrative data/ claims

Measure Steward: The Children´s Hospital of Philadelphia | 3535 Market Street, Suite 1029 | Philadelphia | Pennsylvania | 19104

Steering Committee Recommendation for Endorsement: Y-19; N-1; A-1

0352 Failure to rescue in-hospital mortality (risk adjusted)

Rationale: The measure provides information about how hospitals handle patients who develop complications; i.e., whether hospital systems are in place to prevent a patient complication from progressing to death.

If applicable, Conditions/Questions for Developer:

1. 2a.6 Target Population Age Range: Reevaluate upper age limit in terms of increasing and providing exclusions to capture limited future; e.g., DNR status. In future, consider development of a companion pediatric measure.
2. 2h. Disparities in Care: Provide information about disparities or plans to be able to provide data.
3. 3a.2 Use in Public Reporting Initiative: Provide plans and expected date (within 3 years) for public reporting.

Note: Discussion of Related and Competing measures may result in additional requests to developers specific to harmonization

Developer Response:

1. 2a.6 Target Population Age Range: We use 90 years as a cut-point because of our concern regarding the increased use of do-not-resuscitate at higher ages [Wenger et al. Epidemiology of Do-Not Resuscitate Orders. Disparity by Age, Diagnosis, Gender, Race, and Functional Impairment. Arch Intern Med. 1995; 155(19):2056-62, Hakim et al. Factors Associated with Do-Not-Resuscitate Orders: Patients', Preferences, Prognoses, and Physicians Judgments. Ann Intern Med.1996; 125:284-293.]. While we do adjust for admission severity when reporting FTR, and this includes age, we still thought it prudent to use an upper bound on age, since DNR status prior to the procedure is not well defined at hospitals [Tabak YP, Johannes RS, Silber JH, Kurtz SG, Gibber EM. Should do-not-resuscitate status be included as a mortality risk adjustor? The impact of DNR variations on performance reporting. Med Care 2005; 43:658-666] (See 2d.1 Measure Exclusions Explanation section in submission form). Currently, we are not considering developing a companion pediatric measure because in general the pediatric population has low mortality rates. However we are currently exploring the development of a pediatric FTR specifically for cardiothoracic surgery where mortality rates are higher.
2. 2h. Disparities in Care:
   2h.1. Disparities in care are shown in Silber et al Arch Surg 2009 where the results show white patients displayed a reduction in failure-to-rescue rates in the teaching intensive hospitals vs. non-teaching hospitals (OR, 0.94; 95% CI, 0.92-0.97), black patients displayed an increased failure-to-rescue rate (OR, 1.06; 95% CI, 1.00-1.12)(Results are based on 30 day mortality FTR however in-hospital showed similar results)
   2h.2 Failure to Rescue can be used to detect disparities in health outcomes across providers, shown in Silber et al. Arch Surg 2009.
3. 3a.2 Use in Public Reporting Initiative: FTR information is online for the public to access (http://stokes.chop.edu/programs/cor/outcomes.php). Consumers can access FTR results through the multiple research publications on the measure. In the future FTR could be reported on a wider scale, the same way that mortality rates are reported.

Steering Committee Follow-up:

1. The Steering Committee agreed that the response from the developer was adequate.
2. This was one of three related measures considered for potential harmonization. The three included: m*aintenance measure 0352*: Failure to rescue in-hospital mortality (risk adjusted); m*aintenance measure 0351*: Death among surgical in-patients with serious, treatable complications (PSI 4); and m*aintenance measure 0353*: Failure to rescue 30-day mortality (risk adjusted). Discussion of the three measures is included here. It was noted that measures 0352 and 0353 were initially a single measure that were divided at request of the NQF steering committee that initially considered the measure. The Steering Committee discussed the in-hospital focused measures with the developers in some detail. They noted that while the measures have common elements, measure 0351 captures a broader list of procedures and that some measures of validity have a stronger association with that measure. They also noted that measure 0352 captures a broader group of complications and reliability measures higher than those of 0351 have been reported. Members commented that the measures, while conceptually similar, have different aims; i.e., capture of avoidable complications vs. failure to rescue. In reflecting on the question of whether measure similarities argue for consideration of whether one meets criteria better than the other, they agreed that the measures have different objectives and are complementary.

1. Importance to Measure and Report: Y-18; N-3

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: The measure complements mortality and complication statistics. It provides additional insight into statistics by looking beyond crude mortality and assesses whether hospital systems are in place to prevent a patient complication from progressing to death. This measure is supported by the evidence.

2. Scientific Acceptability of Measure Properties: C-9; P-11; M-1; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale: The measure contains updated CPT codes. The measure is risk adjusted and the population captured includes patients with and without documented complications. It assumes that if patients die post-surgery, there was an undocumented complication.

0352 Failure to rescue in-hospital mortality (risk adjusted)

3. Usability: C-7; P-12; M-2; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale: The measure is somewhat complicated and has not yet been used in public reporting.

4. Feasibility: C-8; P-12; M-1; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale: The measure will be relatively easy to collect since it uses administrative data.

Public and Member Comment

- Should apply at the clinician level of analysis; and
- Preference of capturing DNR orders

Level of Analysis

The developer noted that failure to rescue has always been a hospital measure because: (1) the sample size requirements at the physician level would generally be a problem; (2) attributing blame for not succeeding to avoid an FTR is complex, and needs a systems approach. Directing the blame at a specific physician would seem counterproductive; (3) other measures may better assess physician quality, but this is outside of the research I have conducted in developing the FTR metric.

DNR Orders

The Committee indicated that failure to rescue in the hospital setting involves many systems and professional disciplines making it infeasible to apply the measure at the clinician level. The Committee agreed with the developer that at present use of DNR status as an exclusion could result in hospital differences due to the DNR process.

0353 Failure to rescue 30-day mortality (risk adjusted)

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percentage of patients who died with a complication within 30 days from admission.

Numerator Statement: Patients who died with a complication plus patients who died without documented complications. Death is defined as death within 30 days from admission.

All patients in an FTR analysis have developed a complication (by definition).

Complicated patient has at least one of the complications defined in Appendix B(see website http://www.research.chop.edu/programs/cor/outcomes.php). Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission.

Comorbidities are defined in Appendix C(see website http://www.research.chop.edu/programs/cor/outcomes.php) using secondary ICD9 diagnosis codes of the current admission and primary or secondary ICD9 diagnosis codes of previous admission within 90 days of the admission date of the current admission.

*When physician part B is available, the definition of complications and comorbidities are augmented to include CPT codes.

Denominator Statement: General Surgery, Orthopedic and Vascular patients in specific DRGs with complications plus patients who died in the hospital without complications.

Inclusions: adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see appendix A http://www.research.chop.edu/programs/cor/outcomes.php)

Inclusions: adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see appendix A)

Exclusions: Patients over age 90, under age 18.

Adjustment/Stratification: risk-adjustment devised specifically for this measure/condition Risk Adjustment: Model was developed using logistic regression analysis.

Associated data elements: age in years, sex, race, comorbidities, DRGs (combined with and without complications) and procedure codes within DRGs, transfer status.

Failure to rescue is adjusted using a logistic regression model where y is a failure and the total N is composed of patients who develop a complication and patients who died without a complication.

According to developer: The model adjustment variables can vary. We have found that FTR results are fairly stable, even with little adjustment, since all patients in an FTR analysis have developed a complication (by definition), they are a more homogeneous group of patients than the entire population. Hence severity adjustment plays somewhat less of a role than in other outcome measures/Complicated patient has at least one of the complications defined in Appendix B (http://www.research.chop.edu/programs/cor/outcomes.php) Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission. When Physician Part B file is available, the definition of complications and

0353 Failure to rescue 30-day mortality (risk adjusted)

comorbidities are augmented to include CPT codes.

Level of Analysis: Facility/ Agency, Health Plan, Integrated Delivery System, Population: Counties or cities, Population: National, Population: Regional/ network, Population: States

Type of Measure: Outcome

Data Source: Electronic administrative data/ claims

Measure Steward: The Children´s Hospital of Philadelphia | 34th St. and Civic Center Blvd. | Philadelphia | Pennsylvania | 19104

Steering Committee Recommendation for Endorsement: Y-19; N-2; A-0

Rationale: The measure provides information about how hospitals handle patients who develop complications; i.e., prevent patient complications from progressing to death. It will also track difference in length of stay that could bias statistics associated with in-hospital mortality.

If applicable, Conditions/Questions for Developer:

1. 2a.6 Target Population Age Range: Reevaluate upper age limit in terms of increasing and providing exclusions to capture limited future; e.g., DNR status. In future, consider development of a companion pediatric measure.
2. 2h. Disparities in Care: Provide information about disparities or plans to be able to provide data.
3. 3a.2 Use in Public Reporting Initiative: Provide plans and expected date (within 3 years) for public reporting.
4. Please advise how 30 day data is collected and how post-hospital care with potential for affecting outcomes is handled.

Note: Discussion of Related and Competing measures may result in additional requests to developers specific to harmonization

Developer Response:

1. 2a.6 Target Population Age Range: We use 90 years as a cut-point because of our concern regarding the increased use of do-not-resuscitate at higher ages [Wenger et al. Epidemiology of Do-Not Resuscitate Orders. Disparity by Age, Diagnosis, Gender, Race, and Functional Impairment. Arch Intern Med. 1995; 155(19):2056-62, Hakim et al. Factors Associated with Do-Not-Resuscitate Orders: Patients', Preferences, Prognoses, and Physicians Judgments. Ann Intern Med.1996; 125:284-293.]. While we do adjust for admission severity when reporting FTR, and this includes age, we still thought it prudent to use an upper bound on age, since DNR status prior to the procedure is not well defined at hospitals [Tabak YP, Johannes RS, Silber JH, Kurtz SG, Gibber EM. Should do-not-resuscitate status be included as a mortality risk adjustor? The impact of DNR variations on performance reporting. Med Care 2005; 43:658-666] (See 2d.1 Measure Exclusions Explanation section in submission form)
   Currently, we are not considering developing a companion pediatric measure because in general the pediatric population has low mortality rates. However we are currently exploring the development of a pediatric FTR specifically for cardiothoracic surgery where mortality rates are higher.
2. 2h. Disparities in Care:
   2h.1. Disparities in care are shown in Silber et al Arch Surg 2009 where the results show white patients displayed a reduction in failure-to-rescue rates in the teaching intensive hospitals vs. non-teaching hospitals (OR, 0.94; 95% CI, 0.92-0.97), black patients displayed an increased failure-to-rescue rate (OR, 1.06; 95% CI, 1.00-1.12)(Results are based on 30 day mortality FTR however in-hospital showed similar results)
   2h.2. Failure to Rescue can be used to detect disparities in health outcomes across providers, shown in Silber et al. Arch Surg 2009.
3. 3a.2 Use in Public Reporting Initiative: FTR information is online for the public to access (http://stokes.chop.edu/programs/cor/outcomes.php). Consumers can access FTR results through the multiple research publications on the measure. In the future FTR could be reported on a wider scale, the same way that mortality rates are reported.
4. If one has administrative claims data that can be linked to post-discharge data, then one can report a 30-day from admission measure. The advantage of a 30-day measure is that it is unbiased with respect to the practice pattern of the hospital. All hospitals are judged with the same 30-day window whether they tend to discharge patients earlier than later. This is generally considered to be the gold standard for using mortality data. The FTR 30-day measure has the same advantages of the 30-day mortality measure. Analytic difficulties related to post-discharge care have the same likelihood of occurring across hospitals using the 30-day measure but would be more problematic if a uniform window would not be used.

Steering Committee Follow-up:

1. The Steering Committee agreed that the response from the developer was adequate.
2. This was one of three related measures considered for potential harmonization. The three included: m*aintenance measure 0352*: Failure to rescue in-hospital mortality (risk adjusted); m*aintenance measure 0351*: Death among surgical in-patients with serious, treatable complications (PSI 4); and m*aintenance measure 0353*: Failure to rescue 30-day mortality (risk adjusted). Discussion of the three measures is included here. It was noted that measures 0352 and 0353 were initially a single measure that were divided at request of the NQF steering committee that initially considered the measure. The Steering Committee discussed the in-hospital focused measures with the developers in some detail. They noted that while the measures have

0353 Failure to rescue 30-day mortality (risk adjusted)
common elements, measure 0351 captures a broader list of procedures and that some measures of validity have a stronger association with that measure. They also noted that measure 0352 captures a broader group of complications and reliability measures higher than those of 0351 have been reported. Members commented that the measures, while conceptually similar, have different aims; i.e., capture of avoidable complications vs. failure to rescue. In reflecting on the question of whether measure similarities argue for consideration of whether one meets criteria better than the other, they agreed that the measures have different objectives and are complementary.
1. Importance to Measure and Report: Y-17; N-3; A-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The measure complements mortality and complication statistics. It provides additional insight into statistics by looking beyond crude mortality and assesses whether hospital systems are in place to prevent a patient complication from progressing to death. This measure is supported by the evidence.
2. Scientific Acceptability of Measure Properties: C-6; P-12; M-2; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The measure contains updated CPT codes. The measure is risk adjusted and the population captured includes patients with and without documented complications. It assumes that if patients die post-surgery, there was an undocumented complication.
3. Usability: C-3; P-10; M-8; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The measure uses administrative data and has been shown to be useable; however, it may be complicated to track given the 30 day range.
4. Feasibility: C-3; P-10; M-7; N-1 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: This measure has not yet been used in public reporting. There were questions regarding feasibility of use of this measure for non-Medicare patients.
Public and Member Comment • Should apply at the clinician level of analysis; and • Preference of capturing DNR orders Level of Analysis The developer noted that failure to rescue has always been a hospital measure because: (1) the sample size requirements at the physician level would generally be a problem; (2) attributing blame for not succeeding to avoid an FTR is complex, and needs a systems approach. Directing the blame at a specific physician would seem counterproductive; (3) other measures may better assess physician quality, but this is outside of the research I have conducted in developing the FTR metric. DNR Orders The Committee indicated that failure to rescue in the hospital setting involves many systems and professional disciplines making it infeasible to apply the measure at the clinician level. The Committee agreed with the developer that at present use of DNR status as an exclusion could result in hospital differences due to the DNR process.

0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of cases having developed specified complications of care with an in-hospital death. Numerator Statement: All discharges with a disposition of "deceased" (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator. Denominator Statement: All surgical discharges age 18 years and older or MDC 14 (pregnancy, childbirth, and puerperium) defined by specific DRGs or MS-DRGs and an ICD-9-CM code for an operating room procedure, principal procedure within 2 days of admission OR admission type of elective (ATYPE=3) with potential complications of care listed in Death among Surgical definition (e.g., pneumonia, DVT/PE, sepsis, shock/cardiac arrest, or GI hemorrhage/acute ulcer). Exclusions: Exclude cases: • age 90 years and older • transferred to an acute care facility (DISP = 2) • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year

0351 Death among surgical inpatients with serious, treatable complications (PSI 4)

(YEAR=missing) or principal diagnosis (DX1 =missing)
NOTE: Additional exclusion criteria is specific to each diagnosis (pneumonia, DVT/PE, sepsis, shock/cardiac arrest, or GI hemorrhage/acute ulcer). See 2a.10.
Adjustment/Stratification: risk adjustment method widely or commercially available The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age in years (in 5-year age groups), modified CMS DRG and AHRQ Comorbidities. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate/User has an option to stratify by Gender, age (5-year age groups), race/ ethnicity, primary payer, and custom stratifiers.
Level of Analysis: Facility/ Agency
Type of Measure: Outcome
Data Source: Electronic administrative data/ claims
Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850

Steering Committee Recommendation for Endorsement: Y-20; N-0; A-1
Rationale: This measure highlights specific complications, which presents opportunities for early interventions and action

If applicable, Conditions/Questions for Developer:

1. 2a.6 Target Population Age Range: Expand the age range to include a larger population.

Note: Discussion of Related and Competing measures may result in additional requests to developers specific to harmonization.

Developer Response:

1. There was an error in the NQF measure maintenance form, which noted age 75 years and older were excluded. The actual exclusion is age 90 years and older.

Steering Committee Follow-up:

1. The Steering Committee agreed that the response from the developer was adequate, but requested that the developer update the age specifications listed on their website.
2. This was one of three related measures considered for potential harmonization. The three included: m*aintenance measure 0352*: Failure to rescue in-hospital mortality (risk adjusted); m*aintenance measure 0351*: Death among surgical in-patients with serious, treatable complications (PSI 4); and m*aintenance measure 0353*: Failure to rescue 30-day mortality (risk adjusted). Discussion of the three measures is included here. It was noted that measures 0352 and 0353 were initially a single measure that were divided at request of the NQF steering committee that initially considered the measure. The Steering Committee discussed the in-hospital focused measures with the developers in some detail. They noted that while the measures have common elements, measure 0351 captures a broader list of procedures and that some measures of validity have a stronger association with that measure. They also noted that measure 0352 captures a broader group of complications and reliability measures higher than those of 0351 have been reported. Members commented that the measures, while conceptually similar, have different aims; i.e., capture of avoidable complications vs. failure to rescue. In reflecting on the question of whether measure similarities argue for consideration of whether one meets criteria better than the other, they agreed that the measures have different objectives and are complementary.

1. Importance to Measure and Report: Y-19; N-1
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: This goal of this measure is to capture information about a specific set of surgical complications that have been determined to provide opportunity for early intervention and improvement action.

2. Scientific Acceptability of Measure Properties: C-13; P-7; M-0; N-0
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: An advantage of this measure is that it focuses on a broad population, patients 18 and over.

3. Usability: C-13; P-7; M-0; N-0
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: The measure is currently being widely reported to the public.

4. Feasibility: C-14; P-5; M-0; N-0
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: The measure uses claims data and was considered feasible.

Public and Member Comment

0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
Commenters expressed concerns of using hierarchical risk modeling (HRM). The developer indicated that the measure can be calculated to produce a risk adjusted rate and a smoothed rate. HRM is used in the smoothed rate, but not the risk adjusted rate. The user has the option to use either rate.

0515 Ambulatory surgery patients with appropriate method of hair removal
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of ASC admissions with appropriate surgical site hair removal. Numerator Statement: ASC admissions with surgical site hair removal with a razor or clippers from the scrotal area, or with clippers or depilatory cream from all other surgical sites Denominator Statement: All ASC admissions with surgical site hair removal Exclusions: ASC admissions who perform their own hair removal Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Facility/Agency Type of Measure: Process Data Source: Paper medical record/ flow-sheet Measure Steward: ASC Quality Collaboration | 5686 Escondida Blvd S | St. Petersburg | Florida | 33715
Steering Committee Recommendation for Endorsement: Y-12 (active); Y-7 (reserve); N-2; A-1 Rationale: This measure has high performance in the reporting populations. It would be appropriate to consider reporting the measure as part of a surgical bundle.
Steering Committee Follow-up: The measure developer requested that the Committee's recommendation of the measure be revised from reserve status to active endorsement. The Steering Committee noted that the 96 percent performance on the measure reflected a convenience sample of the 192 institutions that reported and may not accurately reflect performance within the larger ambulatory surgery community. Members agreed that continuing active endorsement of the measure could encourage reporting by those ASCs not currently participating. The developer stated that measure has been proposed for inclusion in the ASC measure set by CMS, and nationwide reporting is anticipated in the next year or so. The Committee agreed that, depending on the increase in reporting, this could allow for a more comprehensive review of the performance gap in the future.
1. Importance to Measure and Report: Y-6; N-13 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The evidence supports the measure; however, at a mean performance level of 96 percent and just over 7 percent of reporting centers with rates below 100 percent, the measure is at a high level of performance.
2. Scientific Acceptability of Measure Properties: C-5; P-13; M-0; N-1 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The Committee stated that the validity testing of the measure could be improved, and the measure did not present disparity data.
3. Usability: C-7; P-9; M-2; N-1 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The measure is in wide use. It was noted that this measure was harmonized with measure *0301: Surgery patients with appropriate hair removal.*
4. Feasibility: C-13; P-4; M-2; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: Required data is generated as part of care and does not require additional sources.
Public and Member Comment Commenters were not in support of this measure because they believed that 100 percent compliance could occur with the removal of razors from the operating room. The Steering Committee's support for continuing this measure in active status was based on the intent to increase the number of ASCs that report the measure to both drive and assess accomplishment of the measure. Absent evidence to the contrary, razors continue to be an acceptable method for preoperative removal of scrotal hair and scalp hair in select circumstances. The exclusion of patients who shave themselves does not diminish capability of the measure to assess ASC performance. In a measure assessing the relationship of method of hair removal to post-operative infection, self-shaving would be an appropriate consideration.

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

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: This measure estimates hospital risk-standardized complication rates (RSCRs) associated with primary elective THA and TKA in patients 65 years and older. The measure uses Medicare claims data to identify complications occurring from the date of index admission to 90 days post date of the index admission.

Numerator Statement: 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); thus, we are using this field to define the outcome (i.e. adverse events) following THA and/or TKA procedures. The outcome is one or more complications, including death, identified from the date of the index admission up to 90 days post date of the index admission, depending on the complication. Complications are counted in the measure only if they occur during the index hospital admission or during a readmission.

The composite complication is a binary outcome (yes for any complication(s); no for no complications). Therefore, if a patient experiences 1 or more complications, the outcome variable will get coded as a "yes." Complications are counted in the measure only if they occur during the index hospital admission or during a readmission.

The complications captured in the numerator are identified during the index admission or associated with a readmission up to 90 days post date of index admission, depending on the complication. The follow-up period for complications from date of index admission is as follows:

1) Mechanical complications - 90 days
2) Periprosthetic joint infection (PJI) - 90 days
3) Wound infection - 90 days
4) Surgical site bleeding - 30 days
5) Pulmonary embolism - 30 days
6) Death - 30 days
7) AMI - 7 days
8) Pneumonia - 7 days
9) Sepsis/septicemia - 7days

Denominator Statement: The target population for this measure includes admissions for patients at least 65 years of age undergoing elective primary THA and/or TKA procedures.

Exclusions: Patients will be excluded from the cohort if they meet any of the followed criteria*:

1. Patients with hip fractures

Presence of one of the following diagnosis codes: 733.1, 733.10, 733.14, 733.15, 733.19, 733.8, 733.81, 733.82, 733.95, 733.96, 733.97, 808.0, 808.1, 820.00, 820.01, 820.02, 820.03, 820.09, 820.10, 820.11, 820.12, 820.13, 820.19, 820.20, 820.21, 820.22, 820.30, 820.31, 820.32, 820.8, 820.9, 821, 821.0, 821.00, 821.01, 821.1, 821.10, 821.11

Rationale: Patients with hip fractures have higher mortality, complication and readmission rates and the procedure (THA) is not elective.

2. Patients undergoing revision procedures (with or without a concurrent THA/TKA)

Presence of one of the following diagnosis codes: 81.53, 81.55, 81.59, 00.70, 00.71, 00.72, 00.73, 00.80, 00.81, 00.82, 00.83, 00.84

Rationale: Revision procedures may be performed at a disproportionately small number of hospitals and are associated with higher mortality, complication and readmission rates.

3. Patients undergoing partial hip arthroplasty procedures (with or without a concurrent THA/TKA)

Presence of the following diagnosis code: 81.52

Rationale: Partial arthroplasties are primarily done for hip fractures and are typically performed on patients who are older, more frail, and with more comorbid conditions.

4. Patients undergoing resurfacing procedures (with or without a concurrent THA/TKA)

Presence of one of the following diagnosis codes: 00.85, 00.86, 00.87

Rationale: Resurfacing procedures are a different type of procedure which are typically performed on younger, healthier patients.

5. Patients with a mechanical complication coded in the principal discharge diagnosis field of the index admission*

Rationale: A complication coded in the principal field indicates it was present on admission, and these patients underwent an arthroplasty due to a complication related to a prior procedure. Furthermore, these patients may require more technically complex arthroplasty procedures, and may be at increased risk for complications, particularly mechanical complications.

6. Patients who are transferred in to the index hospital

Rationale: If the patient is transferred from another acute care facility to the hospital where the index procedure occurs, it is likely that the procedure is not elective.

7. Patients who leave the hospital against medical advice (AMA)

Rationale: Hospitals and physicians do not have the opportunity to provide the highest quality care.

8. Patients with more than two THA/TKA procedure codes during the index hospitalization

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

Rationale: Patients with more than two procedure codes for THA/TKA are excluded because it is rare that a patient would have 3 arthroplasty procedures done at one time. This is likely to be a coding error.

9. Patients with multiple admissions for THA/TKA in the 12 months studied; one hospitalization per patient was randomly selected for inclusion after applying the other exclusion criteria

Rationale: Observations are not independent; a patient is not eligible for the death outcome during the first admission if admitted later in the year for another procedure

*Based on a medical record validation study of this measure, we also excluded patients with a mechanical complication coded in the *principal discharge diagnosis field of the index admission* because a complication coded in the principal field indicates it was present on admission. Furthermore, these patients represent more technically complex arthroplasty procedures, and may be at increased risk for complications, particularly mechanical complications. Please refer to section 2c, Validity Testing for details regarding the validation study.

Adjustment/Stratification: Risk-adjustment devised specifically for this measure/condition/ The measure estimates hospital-level RSCRs using hierarchical logistic regression models. In brief, the approach simultaneously models outcomes at two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand et al., 2007). At the patient level, the model adjusts the log-odds of a complication for age, sex, and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of complication at the hospital, after accounting for case mix. If there were no differences among hospitals, then after adjusting for case mix, the hospital intercepts should be identical across all hospitals. The measure adjusts for key variables that were clinically relevant and had strong relationships with the outcome (e.g. demographic factors, disease severity indicators, and indicators of frailty). For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of the patient at the time of admission. We use condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis and procedure codes. Conditions that may represent adverse outcomes due to care received during the index admission are not considered for inclusion in the risk adjusted model. Although they may increase the risk of mortality and complications, including them as covariates in a risk-adjusted model could attenuate the measure's ability to characterize the quality of care delivered by hospitals. Hence, these conditions are not adjusted for if they only appear in the index admission and not in the 12 months prior to admission.

The risk adjustment model included 33 variables which are listed below:

Demographic

1. Age-65 (years above 65, continuous)
2. Sex

THA/TKA Procedure

3. THA procedure
4. Number of procedures performed

Clinical Risk Factors

5. Skeletal deformities (ICD-9 code 755.63)
6. Post traumatic osteoarthritis (ICD-9 codes 716.15, 716.16)
7. Morbid obesity (ICD-9 code 278.01)
8. Metastatic cancer and acute leukemia (CC 7)
9. Cancer (CC 8-10)
10. Respiratory/Heart/Digestive/Urinary/Other Neoplasms (CC 11-13)
11. Diabetes and DM complications (CC 15-20,119,120)
12. Protein-calorie malnutrition (CC 21)
13. Bone/Joint/Muscle Infections/Necrosis (CC 37)
14. Rheumatoid Arthritis and Inflammatory Connective Tissue Disease (CC 38)
15. Osteoarthritis of hip and knee (CC 40)
16. Osteoporosis and Other Bone/Cartilage Disorders (CC 41)
17. Dementia and senility (CC 49, 50)
18. Major psychiatric disorders (CC 54-56)
19. Hemiplegia, paraplegia, paralysis, function disability (CC 67-69, 100-102, 177-178)
20. Cardio-respiratory failure and shock (CC 79)
21. Chronic atherosclerosis (CC 83-84)
22. Stroke (CC 95, 96)
23. Vascular or circulatory disease (CC 104-106)
24. COPD (CC 108)

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

25. Pneumonia (CC 111-113)
26. Pleural effusion/ pneumothorax (CC 114)
27. End-stage renal disease or dialysis (CC 129, 130)
28. Renal Failure (CC 131)
29. Decubitus ulcer or chronic skin ulcer (CC 148, 149)
30. Trauma (CC 154-156,158-161)
31. Vertebral Fractures (CC 157)
32. Other injuries (CC 162)
33. Major complications of medical care and trauma (CC 164)
Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226/ This measure is not stratified/
Level of Analysis: Facility/ Agency
Type of Measure: Outcome
Data Source: Electronic administrative data/ claims
The datasets used to create the measures are described below.
1. 2008 Part A (inpatient) data
Part A inpatient data includes claims paid for Medicare inpatient hospital care, skilled nursing facility care, some home health agency services, and hospice care. For purposes of this project, Part A is used to refer to inpatient services only and includes data from 2 time periods:
a. Index admission: Index admission data are based on the inclusion/exclusion criteria for THA/TKA, and comorbidities (if any) are identified from the secondary diagnoses associated with the index admission.
b. Pre-index: 12 months prior to the index admission ("pre-index").
2. 2008 Part A (outpatient) data – 12 months pre-index
Hospital outpatient refers to Medicare claims paid for the facility component of surgical or diagnostic procedures, emergency room care, and other non-inpatient services performed in a hospital outpatient department or ambulatory surgical/diagnostic center.
3. Part B data – 12 months pre-index
Part B data refers to Medicare claims for the services of physicians (regardless of setting) and other outpatient care, services, and supplies. For purposes of this project, Part B services included only face-to-face encounters between a care provider and patient. We thus do not include services such as laboratory tests, medical supplies, or other ambulatory services.
4. 2008 Medicare Enrollment Database
This database contains Medicare beneficiary demographic, benefit/coverage, enrollment status on admission, and vital status information. These data have previously been shown to accurately reflect patient vital status (Fleming Fisher et al., 1992).
Fleming C., Fisher ES, Chang CH, Bubolz D, Malenda J. Studying outcomes and hospital utilization in the elderly: The advantages of a merged data base for Medicare and Veterans Affairs Hospitals. Medical Care. 1992; 30(5): 377-91.
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Steering Committee Recommendation for Endorsement: Y-20; N-0; A-2
Rationale: This is a high volume, costly procedure that has been increasingly performed and will be important to measure and report.

If applicable, Conditions/Questions for Developer:
Developer Response:
If applicable, Questions to the Steering Committee:

1. Importance to Measure and Report: Y-19; N-1
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: This is a high volume, costly procedure that has been increasingly performed. There are a number of complications associated with this procedure.

2. Scientific Acceptability of Measure Properties: C-11; P-8; M-1; N-0
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: The measure is valid. The follow-up timing varies depending on the complication. There is a segment of patients that will not be counted with this measure based on the age range, which is limited to patients 65 and over. The risk adjustment is sophisticated. The Committee questioned why deep vein thrombosis (DVT) and urinary tract infections (UTIs) were considered exclusions and noted that the included complications are appropriate.

3. Usability: C-10; P-10; M-0; N-0
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

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

Rationale: The information relies on claims data and is useful for reporting even though timing for the complications may make it more complicated in that there are at different intervals; i.e., 7, 30, 90 days.

4. Feasibility: C-14; P-6; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale: The measure was considered feasible based on the use of administrative claims data.

Public and Member Comment

- Socioeconomic status (SES) should be included in risk adjustment models;
- Concerns of using hierarchical risk modeling (HRM);
- Level of analysis should include providers at all levels;
- Expand to commercial population (ages 18-64); and
- Inadequate list of ICD-9-CM codes in the denominator exclusions

Socioeconomic Status (SES)

The goal of outcomes measurement is to identify variation in the quality of health care so that hospitals can implement measures to improve patient outcomes. Variation in quality associated with population characteristics, such as SES, may be indicative of disparities in the quality of the care provided to vulnerable populations, and risk adjusting for these factors would obscure these disparities. It is a national health priority to bring the outcomes for low SES patients to that of the level of all patients.

Concerns with Hierarchical Risk Modeling

HGLM was used because it accurately reflects the structure of the data being analyzed (patients nested within hospitals). Second, hierarchical models distinguish within-hospital variation and between-hospital variation to estimate the hospital's contribution to the risk of complications. The Committee believes it is important that measures take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. NQF will have a white paper on risk adjustment for CSAC review in Fall 2011.

Level of Analysis

The use of the measure requires facility level measurement which is appropriate. With respect to performance of providers at all levels, the Committee is sensitive to a number of issues that should be considered as organizations determine at what level of analysis measures should be structured and reported.

Commercial Population

The developer is currently performing analyses to support this recommendation and plan to specify the measure in all-payer data and for persons aged 18 and older in 2012. These changes will then be submitted to the NQF.

ICD-9-COM Codes

The developer identified the denominator exclusions in consultation with an advisory group of orthopedic surgeons with experience in identifying relevant procedures in claims data.

1551 Hospital-level 30-day all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: This measure estimates hospital 30-day RSRRs following elective primary THA and TKA in patients 65 years and older. The measure uses Medicare claims data to develop a hospital-level RSRR for THA and TKA and will include patients readmitted for any reason within 30 days of discharge date of the index admission. Some patients are admitted within 30 days of the index hospitalization to undergo another elective THA/TKA procedure. These are considered planned readmissions and are NOT counted in the measure as readmissions.

Numerator Statement: 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); thus, we are using this field to define readmissions.

The outcome for this measure is a readmission to any acute care hospital, for any reason occurring within 30 days of the discharge date of the index hospitalization. We do not count planned readmissions in the outcome (see numerator details).

Denominator Statement: The target population for this measure includes admissions for patients at least 65 years of age undergoing primary THA and/or TKA procedures.

1551 Hospital-level 30-day all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)

Exclusions: Patients will be excluded from the cohort if they meet any of the followed criteria:

1. Patients with hip fractures

Presence of one of the following diagnosis codes: 733.1, 733.10, 733.14, 733.15, 733.19, 733.8, 733.81, 733.82, 733.95, 733.96, 733.97, 808.0, 808.1, 820.00, 820.01, 820.02, 820.03, 820.09, 820.10, 820.11, 820.12, 820.13, 820.19, 820.20, 820.21, 820.22, 820.30, 820.31, 820.32, 820.8, 820.9, 821, 821.0, 821.00, 821.01, 821.1, 821.10, 821.11

Rationale: Patients with hip fractures have higher mortality, complication and readmission rates and the procedure (THA) is generally not elective.

2. Patients undergoing revision procedures (with or without a concurrent THA/TKA)

Presence of one of the following procedure codes: 81.53, 81.55, 81.59, 00.70, 00.71, 00.72, 00.73, 00.80, 00.81, 00.82, 00.83, 00.84

Rationale: Revision procedures may be performed at a disproportionately small number of hospitals and are associated with higher mortality, complication, and readmission rates.

3. Patients undergoing partial hip arthroplasty procedures (with or without a concurrent THA/TKA)

Presence of the following procedure code: 81.52

Rationale: Partial arthroplasties are primarily done for hip fractures and are typically performed on patients who are older, more frail, and with more comorbid conditions.

4. Patients undergoing resurfacing procedures (with or without a concurrent THA/TKA)

Presence of one of the following procedure codes: 00.85, 00.86, 00.87

Rationale: Resurfacing procedures are a different type of procedure which are typically performed on younger, healthier patients.

5. Patients with a mechanical complication coded in the principal discharge diagnosis field of the index admission*

Rationale: A complication coded in the principal field indicates it was present on admission, and these patients underwent an arthroplasty due to a complication related to a prior procedure. Furthermore, these patients may require more technically complex arthroplasty procedures, and may be at increased risk for complications, particularly mechanical complications.

6. Patients without at least 30-days post-discharge enrolment in Medicare

Rationale: The 30-day readmission outcome cannot be assessed for the standardized time period.

7. Patients who are transferred in to the index hospital

Rationale: If the patient is transferred from another acute care facility to the hospital where the index procedure occurs, it is likely that the procedure is not elective.

8. Patients who were admitted for the index procedure and subsequently transferred to another acute care facility

Rationale: Attribution of readmission to the index hospital would not be possible in these cases, since the index hospital performed the procedure but another hospital discharged the patient to the non-acute care setting.

9. Patients who leave against medical advice (AMA)

Rationale: Hospitals and physicians do not have the opportunity to provide the highest quality care for these patients.

10. Patients with more than two THA/TKA procedures codes during the index hospitalization

Rationale: Patients with more than two procedure codes for THA/TKA are excluded because it is rare that a patient would have 3 arthroplasty procedures done at one time. This is likely to be a coding error.

10. Patients who die during the index admission

Rationale: Patients who die during the initial hospitalization are not eligible for readmission.

Additional otherwise qualifying THA and/or TKA admissions that occurred within 30 days of discharge date of an earlier index admission are not considered as index admission. They are considered as potential readmissions. Any THA and/or TKA admission is either an index admission or a potential readmission, but not both.

*Based on a medical record validation study of the paired hospital risk-standardized complications measure, we also excluded patients with a mechanical complication coded in the *principal discharge diagnosis field of the index admission* because a complication coded in the principal field indicates it was present on admission. Furthermore, these patients represent more technically complex arthroplasty procedures, and may be at increased risk for readmission, particularly for mechanical complications.

Prior to this cohort exclusion, there were 295,224 patients in the readmission measure cohort (2008). After excluding from the measure cohort, the patients who had a mechanical complication coded in the principal discharge diagnosis field on the index admission, the number of patients in the cohort decreased by 930 patients to 294,292 (less than 0.5% decrease).

The hospital risk-standardized mean readmission rate prior to this cohort exclusion was 6.25% (range 3.03 to 50.97%). The hospital risk-standardized mean readmission rate after this cohort exclusion increased slightly to 6.27% (range 3.06 to 50.72%). Thus, the additional cohort exclusion has a minimal effect on the hospital risk-standardized mean readmission rate, but the range of the rate still shows significant variation in hospital readmission rates. Details regarding the validation study are provided in the NQF application for the paired hospital risk-standardized complications measure (section 2c, Validity Testing).

Adjustment/Stratification: Risk-adjustment devised specifically for this measure/condition The measure estimates hospital-level 30-day all-cause RSRRs using hierarchical logistic regression models. In brief, the approach simultaneously models outcomes at two levels

(patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand et al., 2007). To model the log-odds of 30-day all-cause readmission at the patient level, the model adjusts for age, sex, and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of readmission at the hospital, after accounting for case mix. If there were no differences among hospitals, then after adjusting for case mix, the hospital intercepts should be identical across all hospitals. The measure adjusts for key variables that are clinically relevant and have strong relationships with the outcome (e.g. demographic factors, disease severity indicators, and indicators of frailty). For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of the patient at the time of admission. We use condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis and procedure codes. We do not risk-adjust for CCs that are possible adverse events of care and that are only recorded in the index admission. In addition, only comorbidities that convey information about the patient at that time or in the 12-months prior, and not complications that arise during the course of the hospitalization are included in the risk-adjustment. The risk adjustment model included 33 variables which are listed below:

Demographics

1. Age-65 (years above 65, continuous)
2. Sex

TKA/THA Procedure

3. THA procedure
4. Number of procedures (2 vs.1)

Clinical Risk Factors

5. History of Infection (CC 1, 3-6)
6. Metastatic cancer and acute leukemia (CC 7)
7. Cancer (CC 8-12)
8. Diabetes and DM complications (CC 15-20, 119, 120)
9. Protein-calorie malnutrition (CC 21)
10. Disorders of Fluid/Electrolyte/Acid-Base (CC 22, 23)
11. Rheumatoid Arthritis and Inflammatory Connective Tissue Disease (CC 38)
12. Severe Hematological Disorders (CC 44)
13. Dementia and senility (CC 49, 50)
14. Major psychiatric disorders (CC 54-56)
15. Hemiplegia, paraplegia, paralysis, functional disability (CC 67-69, 100-102, 177-178)
16. Polyneuropathy (CC 71)
17. Congestive Heart Failure (CC 80)
18. Chronic Atherosclerosis (CC 83-84)
19. Hypertension (CC 89, 91)
20. Arrhythmias (CC 92, 93)
21. Stroke (CC 95, 96)
22. Vascular or circulatory disease (CC 104-106)
23. COPD (CC 108)
24. Pneumonia (CC 111-113)
25. End-stage renal disease or dialysis (CC 129, 130)
26. Renal Failure (CC 131)
27. Decubitus ulcer or chronic skin ulcer (CC 148, 149)
28. Cellulitis, Local Skin Infection (CC 152)
29. Other Injuries (CC162)
30. Major Symptoms, Abnormalities (CC 166)
31. Skeletal Deformities (ICD-9 code 755.63)
32. Post Traumatic Osteoarthritis (ICD-9 codes 716.15, 716.16)
33. Morbid Obesity (ICD-9 code 278.01)/No stratification is required for this measure.

Level of Analysis: Facility/ Agency

Type of Measure: Outcome

Data Source: Electronic administrative data/ claims

We obtained index admission, readmission, and in-hospital comorbidity data from Medicare's Standard Analytic File (SAF). Comorbidities were also assessed using Part A inpatient, outpatient, and Part B office visit Medicare claims in the 12 months prior to

1551 Hospital-level 30-day all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)

index admission. Enrollment and post-discharge mortality status were obtained from Medicare's enrollment database which contains beneficiary demographic, benefit/coverage, and vital status information.

1. 2008 Part A (inpatient) data

Part A inpatient data includes claims for Medicare inpatient hospital care, skilled nursing facility care, some home health agency services, and hospice care. For purposes of this project, Part A is used to refer to inpatient services only and includes data from 2 time periods:

a. Index admission: Index admission data are based on the inclusion/exclusion criteria for THA/TKA, and comorbidities (if any) are identified from the secondary diagnoses associated with the index admission.

b. Pre-index: 12 months prior to the index admission ("pre-index").

2. 2008 Part A (outpatient) data – 12 months pre-index

Hospital outpatient refers to Medicare claims paid for the facility component of surgical or diagnostic procedures, emergency room care, and other non-inpatient services performed in a hospital outpatient department or ambulatory surgical/diagnostic center.

3. Part B data – 12 months pre-index

Part B data refers to Medicare claims for the services of physicians (regardless of setting) and other outpatient care, services, and supplies. For purposes of this project, Part B services included only face-to-face encounters between a care provider and patient. We thus do not include services such as laboratory tests, medical supplies, or other ambulatory services.

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Steering Committee Recommendation for Endorsement: Y-20; N-0; A-2

Rationale: This is a high volume, costly procedure that has been increasingly performed and will be important to measure and report.

If applicable, Conditions/Questions for Developer:

Developer Response:

If applicable, Questions to the Steering Committee:

1. Importance to Measure and Report: Y-20; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: This is a high volume, costly procedure that has been increasingly performed. There are a number of complications associated with this procedure.

2. Scientific Acceptability of Measure Properties: C-15; P-5; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale: This was considered valid and easier to measure than *1550 Hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)* since it focuses on all causes for readmission other than for elective procedures. There is a segment of patients that will not be counted within this measure based on the age range, which is limited to patients aged 65 years and over. The risk adjustment is sophisticated. The Committee questioned why deep vein thrombosis (DVT) and urinary tract infections (UTIs) were considered exclusions.

3. Usability: C-16; P-4; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale: The measure is in wide use.

4. Feasibility: C-14; P-6; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale: This measure is based on administrative claims data.

Public and Member Comment

- Socioeconomic status (SES) should be included in risk adjustment models;
- Concerns of using hierarchical risk modeling (HRM);
- Level of analysis should apply to providers at all levels;
- Expand to commercial population (ages 18-64); and

Socioeconomic Status (SES)

The goal of outcomes measurement is to identify variation in the quality of health care so that hospitals can implement measures to improve patient outcomes. Variation in quality associated with population characteristics, such as SES, may be indicative of disparities in the quality of the care provided to vulnerable populations, and risk adjusting for these factors would obscure these disparities. It is a national health priority to bring the outcomes for low SES patients to that of the level of all patients.

1551 Hospital-level 30-day all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)

Concerns with Hierarchical Risk Modeling
HGLM was used because it accurately reflects the structure of the data being analyzed (patients nested within hospitals). Second, hierarchical models distinguish within-hospital variation and between-hospital variation to estimate the hospital's contribution to the risk of complications. The Committee believes it is important that measures take into account patient risk factors while ensuring that variations in care are not obscured by risk adjustment. NQF will have a white paper on risk adjustment for CSAC review in Fall 2011.

Level of Analysis
The use of the measure requires facility level measurement which is appropriate. With respect to performance of providers at all levels, the Committee is sensitive to a number of issues that should be considered as organizations determine at what level of analysis measures should be structured and reported.

Commercial Population
The developer is currently performing analyses to support this recommendation and plan to specify the measure in all-payer data and for persons aged 18 and older in 2012. These changes will then be submitted to the NQF.

1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percentage of patients aged 18 years and older who had cataract surgery and had improvement in visual function achieved within 90 days following the cataract surgery
Numerator Statement: Patients 18 years and older in sample who had improvement in visual function achieved within 90 days following cataract surgery, based on completing a pre-operative and post-operative visual function instrument
Denominator Statement: All patients aged 18 years and older in sample who had cataract surgery
Exclusions:
Adjustment/Stratification: no risk adjustment necessary/ A risk adjustment methodology is not necessary if the stratification schema is utilized, as described above./ This measure can be stratified into two major groups: those patients with ocular co-morbidities and those patients without ocular co-morbidities. An improvement in visual function after cataract surgery would be expected in both groups, however the magnitude of the difference would vary by group. The Cataract Patient Outcomes Research Team found that an important preoperative patient characteristic that was independently associated with failure to improve on one of the outcomes measured (including the VF-14) was ocular comorbidity. The authors explained that this was expected, because it is reasonable to assume that other diseases that impair visual function would be correlated with a reduced improvement in functional status. The National Eye Care Outcomes Network also found that there were differences in the mean postooperative VF-14 scores across groups of patients with and without ocular co-morbidities, as seen in the table below. The study involving the Rasch-scaled short version of the VF-14 also found differences between the preoperative and postoperative visual function test scores and differences between preoperative and postoperative visual function tests, as seen below.
National Eyecare Outcomes Network
Mean VF-14 (postoperative)
- Total 92.7
- With ocular comorbidity 89.9
- Without ocular comorbidity 94.6

Rasch-Scaled Short Version of the VF-14
Patients without Ocular Comorbidity - Preop VF-8R - 68.87
Postop VF-8R - 86.22
Mean Diff = 17.35
Patients with Ocular Comorbidity - Preop VF-8R - 67.71
Postop VF-8R - 81.58
Mean Diff = 13.87

A list of codes for comorbidities can be found in the AMA PCPI measure for 20/40 visual acuity after cataract surgery:
Acute and subacute iridocyclitis 364.00
Acute and subacute iridocyclitis 364.01
Acute and subacute iridocyclitis 362.02
Acute and subacute iridocyclitis 364.03
Acute and subacute iridocyclitis 364.04

1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery			
Acute and subacute iridocyclitis	364.05		
Amblyopia	368.01		
Amblyopia	368.02		
Amblyopia	368.03		
Burn confined to eye and adnexa	940.0		
Burn confined to eye and adnexa	940.1		
Burn confined to eye and adnexa	940.2		
Burn confined to eye and adnexa	940.3		
Burn confined to eye and adnexa	940.4		
Burn confined to eye and adnexa	940.5		
Burn confined to eye and adnexa	940.9		
Cataract secondary to ocular disorders	366.32		
Cataract secondary to ocular disorders	366.33		
Certain types of iridocyclitis	364.21		
Certain types of iridocyclitis	364.22		
Certain types of iridocyclitis	364.23		
Certain types of iridocyclitis	364.24		
Certain types of iridocyclitis	364.3		
Choroidal degenerations	363.43		
Choroidal detachment	363.72		
Choroidal hemorrhage and rupture	363.61		
Choroidal hemorrhage and rupture	363.62		
Choroidal hemorrhage and rupture	363.63		
Chorioretinal scars	363.30		
Chorioretinal scars	363.31		
Chorioretinal scars	363.32		
Chorioretinal scars	363.33		
Chorioretinal scars	363.35		
Chronic iridocyclitis	364.10		
Chronic iridocyclitis	364.11		
Cloudy cornea	371.01		
Cloudy cornea	371.02		
Cloudy cornea	371.03		
Cloudy cornea	371.04		
Corneal edema	371.20		
Corneal edema	371.21		
Corneal edema	371.22		
Corneal edema	371.23		
Corneal edema	371.43		
Corneal edema	371.44		
Corneal opacity and other disorders of cornea		371.00	
Corneal opacity and other disorders of cornea		371.03	
Corneal opacity and other disorders of cornea		371.04	
Degenerative disorders of globe	360.20		
Degenerative disorders of globe	360.21		
Degenerative disorders of globe	360.23		
Degenerative disorders of globe	360.24		
Degenerative disorders of globe	360.29		
Degeneration of macula and posterior pole		362.50	
Degeneration of macula and posterior pole		362.51	
Degeneration of macula and posterior pole		362.52	
Degeneration of macula and posterior pole		362.53	
Degeneration of macula and posterior pole		362.54	
Degeneration of macula and posterior pole		362.55	
Degeneration of macula and posterior pole		362.56	

1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery										
Degeneration of macula and posterior pole	362.57									
Disseminated chorioretinitis and disseminated retinochoroiditis	363.10									
Disseminated chorioretinitis and disseminated retinochoroiditis	363.11									
Disseminated chorioretinitis and disseminated retinochoroiditis	363.12									
Disseminated chorioretinitis and disseminated retinochoroiditis	363.13									
Disseminated chorioretinitis and disseminated retinochoroiditis	363.14									
Disseminated chorioretinitis and disseminated retinochoroiditis	363.15									
Diabetic retinopathy	362.01									
Diabetic retinopathy	362.02									
Diabetic retinopathy	362.03									
Diabetic retinopathy	362.04									
Diabetic retinopathy	362.05									
Diabetic retinopathy	362.06									
Diabetic macular edema	362.07									
Disorders of optic chiasm	377.51									
Disorders of optic chiasm	377.52									
Disorders of optic chiasm	377.53									
Disorders of optic chiasm	377.54									
Disorders of visual cortex	377.75									
Focal chorioretinitis and focal retinochoroiditis	363.00									
Focal chorioretinitis and focal retinochoroiditis	363.01									
Focal chorioretinitis and focal retinochoroiditis	363.03									
Focal chorioretinitis and focal retinochoroiditis	363.04									
Focal chorioretinitis and focal retinochoroiditis	363.05									
Focal chorioretinitis and focal retinochoroiditis	363.06									
Focal chorioretinitis and focal retinochoroiditis	363.07									
Focal chorioretinitis and focal retinochoroiditis	363.08									
Glaucoma	365.10									
Glaucoma	365.11									
Glaucoma	365.12									
Glaucoma	365.13									
Glaucoma	365.14									
Glaucoma	365.15									
Glaucoma	365.20									
Glaucoma	365.21									
Glaucoma	365.22									
Glaucoma	365.23									
Glaucoma	365.24									
Glaucoma	365.31									
Glaucoma	365.32									
Glaucoma	365.51									
Glaucoma	365.52									
Glaucoma	365.59									
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.41									
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.42									
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.43									
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.44									
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.60									
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.61									
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.62									
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.63									
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.64									
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.65									
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.81									
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes	365.82									

1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.83
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.89
Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.9
Hereditary corneal dystrophies 371.50
Hereditary corneal dystrophies 371.51
Hereditary corneal dystrophies 371.52
Hereditary corneal dystrophies 371.53
Hereditary corneal dystrophies 371.54
Hereditary corneal dystrophies 371.55
Hereditary corneal dystrophies 371.56
Hereditary corneal dystrophies 371.57
Hereditary corneal dystrophies 371.58
Hereditary choroidal dystrophies 363.50
Hereditary choroidal dystrophies 363.51
Hereditary choroidal dystrophies 363.52
Hereditary choroidal dystrophies 363.53
Hereditary choroidal dystrophies 363.54
Hereditary choroidal dystrophies 363.55
Hereditary choroidal dystrophies 363.56
Hereditary choroidal dystrophies 363.57
Hereditary retinal dystrophies 362.70
Hereditary retinal dystrophies 362.71
Hereditary retinal dystrophies 362.72
Hereditary retinal dystrophies 362.73
Hereditary retinal dystrophies 362.74
Hereditary retinal dystrophies 362.75
Hereditary retinal dystrophies 362.76
High myopia 360.20
High myopia 360.21
Injury to optic nerve and pathways 950.0
Injury to optic nerve and pathways 950.1
Injury to optic nerve and pathways 950.2
Injury to optic nerve and pathways 950.3
Injury to optic nerve and pathways 950.9
Keratitis 370.03
Moderate or severe impairment, better eye, profound impairment lesser eye 369.10
Moderate or severe impairment, better eye, profound impairment lesser eye 369.11
Moderate or severe impairment, better eye, profound impairment lesser eye 369.12
Moderate or severe impairment, better eye, profound impairment lesser eye 369.13
Moderate or severe impairment, better eye, profound impairment lesser eye 369.14
Moderate or severe impairment, better eye, profound impairment lesser eye 369.15
Moderate or severe impairment, better eye, profound impairment lesser eye 369.16
Moderate or severe impairment, better eye, profound impairment lesser eye 369.17
Moderate or severe impairment, better eye, profound impairment lesser eye 369.18
Nystagmus and iother irregular eye movements 379.51
Open wound of eyeball 871.0
Open wound of eyeball 871.1
Open wound of eyeball 871.2
Open wound of eyeball 871.3
Open wound of eyeball 871.4
Open wound of eyeball 871.5
Open wound of eyeball 871.6
Open wound of eyeball 871.7
Open wound of eyeball 871.9
Optic atrophy 377.10

1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery
Optic atrophy 377.11
Optic atrophy 377.12
Optic atrophy 377.13
Optic atrophy 377.14
Optic atrophy 377.15
Optic atrophy 377.16
Optic neuritis 377.30
Optic neuritis 377.31
Optic neuritis 377.32
Optic neuritis 377.33
Optic neuritis 377.34
Optic neuritis 377.39
Other background retinopathy and retinal vascular changes 362.12
Other background retinopathy and retinal vascular changes 362.16
Other background retinopathy and retinal vascular changes 362.18
Other corneal deformities 371.70
Other corneal deformities 371.71
Other corneal deformities 371.72
Other corneal deformities 371.73
Other disorders of optic nerve 377.41
Other disorders of sclera 379.11
Other disorders of sclera 379.12
Other endophthalmitis 360.11
Other endophthalmitis 360.12
Other endophthalmitis 360.13
Other endophthalmitis 360.14
Other endophthalmitis 360.19
Other retinal disorders 362.81
Other retinal disorders 362.82
Other retinal disorders 362.83
Other retinal disorders 362.84
Other retinal disorders 362.85
Other retinal disorders 362.89
Other and unspecified forms of chorioretinitis and retinochoroiditis 363.20
Other and unspecified forms of chorioretinitis and retinochoroiditis 363.21
Other and unspecified forms of chorioretinitis and retinochoroiditis 363.22
Prior penetrating keratoplasty 371.60
Prior penetrating keratoplasty 371.61
Prior penetrating keratoplasty 371.62
Profound impairment, both eyes 369.00
Profound impairment, both eyes 369.01
Profound impairment, both eyes 369.02
Profound impairment, both eyes 369.03
Profound impairment, both eyes 369.04
Profound impairment, both eyes 369.05
Profound impairment, both eyes 369.06
Profound impairment, both eyes 369.07
Profound impairment, both eyes 369.08
Purulent endophthalmitis 360.00
Purulent endophthalmitis 360.01
Purulent endophthalmitis 360.02
Purulent endophthalmitis 360.03
Purulent endophthalmitis 360.04
Retinal detachment with retinal defect 361.00
Retinal detachment with retinal defect 361.01

1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery

Retinal detachment with retinal defect	361.02
Retinal detachment with retinal defect	361.03
Retinal detachment with retinal defect	361.04
Retinal detachment with retinal defect	361.05
Retinal detachment with retinal defect	361.06
Retinal detachment with retinal defect	361.07
Retinal vascular occlusion	362.31
Retinal vascular occlusion	362.32
Retinal vascular occlusion	362.35
Retinal vascular occlusion	362.36
Retinopathy of prematurity	362.21
Scleritis and episcleritis	379.04
Scleritis and episcleritis	379.05
Scleritis and episcleritis	379.06
Scleritis and episcleritis	379.07
Scleritis and episcleritis	379.09
Separation of retinal layers	362.41
Separation of retinal layers	362.42
Separation of retinal layers	362.43
Uveitis	360.11
Uveitis	360.12
Visual field defects	368.41

References:

1. Schein OD, Steinberg EP, Cassard SD et al. Predictors of outcome in patients who underwent cataract surgery. Ophthalmology 1995; 102:817-23.

2. Lum F, Schachat AP, Jampel HD.The development and demise of a cataract surgery database. Jt Comm J Qual Improv. 2002 Mar;28(3):108-14.

3. Gothwal VK, Wright TA, Lamoureux EL, Pesudovs K. Measuring outcomes of cataract surgery using the Visual Function Index-14. J Cataract Refract Surg 2010; 36:1181-8. no risk adjustment necessary

Level of Analysis: Clinicians: Individual

Type of Measure: Outcome

Data Source: Survey: Patient

Measure Steward: American Academy of Ophthalmology and Hoskins Center for Quality Eye Care | 655 Beach Street | San Francisco | California, 94109-1336

Steering Committee Recommendation for Endorsement: Y-16; N-4; A-1

Rationale: The Committee verified the importance of patient centered measures such as this one noting that the additional information that is provided from the patient perspective about visual function makes this an important and useful measure.

If applicable, Conditions/Questions for Developer:

Overarching comment: The numerator, denominator with the inclusions and exclusions should be refined to capture patients relevant to the measure focus and the measure should be tested with the changes that are made.

1. 2a.3 Numerator Details: a) Provide the method (e.g., scale or other method to demonstrate improvement quantatively pre- and post- surgery) to define "improvement"; b) It appears inappropriate to include, in the numerator, patients who do not complete visual function assessments; reevaluate how these cases should be handled; c) Indicate whether objective vs. subjective improvement by survey only; d) Specify whether patient is surveyed both pre-and post-surgery. If only post-surgery, is the patient asked to rate vision preoperatively and asked to rate vision post-operatively, or is the patient asked to rate the number of points of improvement?
2. 2a.9 Denominator Exclusions: Excluding patients who do not want to complete the survey inappropriately inflates the rate.
3. 2a.25 Data Source/Data Collection Instrument: a) Identify the specific tool(s) used for the measure and provide information about the use for which it/they have been validated (e.g., self-administration, provider facilitated administration, etc.); b) Include information about why the objective assessment of visual function/acuity should be supplement with such a measure; c) Define survey methodology: Is it a mail survey, phone survey, in office paper survey with questions asked by office staff? Is the survey of the entire population of those with cataract surgery or a sample? If a sample, please specify sampling methodology.
4. 3a.2 Use in Public Reporting Initiative: Provide plans and expected date (within 3 years) for public reporting.
5. 4e Data Collection Strategy: Clarify more specifically the burden on providers of data collection.

Developer Response:

1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery

1. 2a.3 Numerator Details: a) The method to define "improvement" used is the quantitative scale used pre and post surgery to measure visual function with the VF-8R instrument. The scale is from 0-100, with 0 indicating the lack of ability to perform any of the daily activities and 100 indicating full capability of performing the daily activities included in the survey. Currently in the scientific literature, there is no well-established method to define a threshold or interval that indicates improvement on the VF-8R. The Rasch scale has found to be more sensitive to change than the VF-14 in longitudinal studies and has a different scale for scoring than the VF-14. The VF-14 is based on summative scoring, which has no rationale for how numerical values are assigned and how a summary score is produced, and does not give a sense of the degree of change. The Rasch model is based on Item Response Theory, which is based on item difficulty in relationship to an individual's ability and weighs the overall score accordingly, providing a gain in precision. Thus any difference between the pre-operative and post-operative scores on the VF-8R would indicate an improvement in functional activities. The average difference found between pre-operative and post-operative assessment on the VF-8R was 15.39 (Standard error = 2.66).
   In the literature, there have been two studies looking at the clinically important differences for the VF-14 index. One study found that the minimal clinically important difference was 15.57; another study found that the minimally clinically important difference was 5.5. b) Regarding the cases that do not complete visual function instruments; these will not be included in the numerator. c) This is subjective improvement by patient self-reporting by survey, as measured by the VF-8R instrument. d) The patient is surveyed both pre- and post-surgery.
2. 2a.9 Denominator Exclusions: We agree and will not exclude patients who do not want to complete the survey.
3. 2a.25 Data Source/Data Collection Instrument: a) The specific tool used for the measure is the VF-8R. The information about the use for which it has been validated is self- administration. There are at least two peer-reviewed studies in the literature reports demonstrating the validity and responsiveness of the self-administered VF-14. b) It is important to supplement the existing measure for objective assessment of visual acuity because this new measure centers on patient quality of life, ability to perform activities of daily living and is a patient-reported outcome. This is the outcome most critical and applicable to the patient. Visual acuity is an objective assessment of visual function but only describes one aspect of visual function. Visual function has multiple components in addition to central near, intermediate, and distance visual acuity. It also encompasses peripheral vision; visual search; binocular vision; depth perception; contrast sensitivity; perception of color; adaptation; and visual processing speed; all of which cannot be measured in a visual acuity test. This measure focuses on the functional disability caused by visual impairment, because many activities of daily living are affected by one or more of these components of visual function. c) The survey methodology is described as follows. The survey would be administered by a third party (a registry for reporting of PQRS measures) to prevent or minimize bias which might be introduced if it is an in-office paper survey with questions asked by the office staff. Options would be provided to the patient, either online survey, mail survey or phone survey, depending on their preferences and abilities. The survey would be of a sample of those individuals with cataract surgery. The sample size would be postulated at 30, because this is a well-accepted statistical sample and used by the CMS for reporting on measure groups in PQRS. Because visual function is reported at 90 days after surgery, this would allow physicians to identify 30 cases from January –August for reporting purposes.
4. 3a.2 Use in Public Reporting Initiative: This is planned for public reporting through the CMS PQRS within the next 3 years.
5. 4e Data Collection Strategy: The sampling strategy of 30 cases, and the use of a third party (a registry for reporting of PQRS measures initiated by the Academy) should significantly alleviate the burden on providers of data collection. Providers would not be responsible for collecting this data from patients and following up on their response.

Steering Committee Follow-up:

1. The Steering Committee stated that the data collection strategy involving the use of a third party and registry initiated by the Academy would alleviate the burden on providers. The Steering Committee clarified that about 94 percent of practicing ophthalmology practices belong to the Academy but that non-members could also be included in the registry.
2. This was one of two related measures considered for potential harmonization. The two included: n*ew candidate measure 1536*: Cataracts: Improvement in patient's visual function within 90 days following cataract surgery; and e*ndorsed measure 0565*: Cataracts: 20/40 or better visual acuity within 90 days following cataract surgery. Discussion of the two measures is included here. The Steering Committee noted that measures 1536 and 0565 are similar but not competing since one measures acuity and the other patient perception of visual function. Potential for harmonization was discussed in terms of numerator and denominator as well as data gathering strategies. It was determined that harmonization could result in the loss of valuable information. The group also liked the fact that measure 1536 measures patient satisfaction. Variation between the measures was considered acceptable since the measures are designed to capture different things/data.

1. Importance to Measure and Report: Y-18; N-1

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: The Committee recognized the frequent occurrence of cataract surgery in the United States. They also affirmed the importance of patient-centered measures. In this measure, visual function is considered a more broad assessment than that of visual acuity.

1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery
2. Scientific Acceptability of Measure Properties: C-2; P-12; M-4; N-1 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The Committee was advised that the tool used for assessment of visual function had been validated. It was questioned how the measure defined visual improvement. The time window of the measure may need to be extended to take into account multi-focal implants, which are now being used to improve visual acuity. The Committee suggested measuring the improvement in visual function for patients with and without comorbidities.
3. Usability: C-1; P-15; M-1; N-2 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The tool is self-administered. The return rate has been 50 percent; which is considered a good rate for surveys. Some patient contact has been required to increase return rate. The Committee encouraged the developer to reconsider this practice. They did note the value to consumer decision making to have the type of information the measure provides.
4. Feasibility: C-1; P-12; M-4; N-2 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: It was questioned whether patients could accurately assess their visual acuity. In addition to potential bias introduced by calling patients to respond, they also mentioned that the exclusion criteria of "patient refused to participate" may bias the results. Additionally, conducting the survey will incur a cost and the burden on the provider was described as unclear.
Public and Member Comment Commenters note that this a good measure and suggested that the threshold of 'improvement' is needed to make the measure more objective. The developer indicated that improvement in visual function is defined by the quantitative scale used in the VF-8R survey instrument pre and post-surgery. The VF-8R uses a Rasch model based on Item Response Theory, which is based on item difficulty in relationship to an individual's ability and weighs the overall score accordingly, providing a gain in precision. The function scale is from 0-100, with 0 indicating the lack of ability to perform any of the daily activities and 100 indicating full capability of performing the daily activities included in the survey. The Committee noted that with additional experience and evidence, categories reflecting amount of improvement may prove possible and encourages continued evolution of the measure.

1741 Patient experience with surgical care based on the consumer assessment of healthcare providers and systems (CAHPS) ® surgical care survey
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: The following 6 composites and 1 single-item measure are generated from the Consumer Assessment of Healthcare Providers and Systems (CAHPS®) Surgical Care Survey. Each measure is used to assess a particular domain of surgical care quality from the patient's perspective. Measure 1: Information to help you prepare for surgery (2 items) Measure 2: How well surgeon communicates with patients before surgery (4 items) Measure 3: Surgeon's attentiveness on day of surgery (2 items) Measure 4: Information to help you recover from surgery (4 items) Measure 5: How well surgeon communicates with patients after surgery (4 items) Measure 6: Helpful, courteous, and respectful staff at surgeon's office (2 items) Measure 7: Rating of surgeon (1 item) The Consumer Assessment of Healthcare Providers and Systems (CAHPS®) Surgical Care Survey is administered to adult patients (age 18 and over) having had a major surgery as defined by CPT codes (90 day globals) within 3 to 6 months prior to the start of the survey. Numerator Statement: We recommend that CAHPS Surgical Survey composites be calculated using a top-box scoring method. The top box score refers to the percentage of patients whose responses indicated excellent performance for a given measure. This approach is a kind of categorical scoring because the emphasis is on the score for a specific category of responses. The composite measures do not have a typical numerator. This section is used to describe the composite score. The composite score is the average proportion of respondents who answered the most positive response category across the questions in the composite. The top box numerators for items within Composite measures 1, 2, 4, 5, and 6 is the number of respondents who answered "Yes, definitely" across the items in each composite. The top box composite score is the average proportion of respondents who answered "Yes, definitely" across the items in the composite. The top box numerator for items within Composite measure 3 is the number of respondents who answered "Yes" across the items in this composite. The top box composite score is the average proportion of respondents who answered "Yes" across the items in this

1741 Patient experience with surgical care based on the consumer assessment of healthcare providers and systems (CAHPS) ® surgical care survey
composite. The top box numerator for the Measure 7, the Global Rating Item, is the number of respondents who answered 9 or 10 to the Global Rating Item. Note that for users who want to case-mix adjust their scores, case-mix adjustment can be done using the CAHPS macro and the adjustment is made prior to the calculation of the total score. For more, see section 2e.2. See also Attachment H: Reporting Measures for the CAHPS Surgical Care Survey. Denominator Statement: The composite does not have a typical denominator statement. This section describes the target population. The major criteria for selecting patients were having had a major surgery as defined by CPT codes (90 day globals) within 3 to 6 months prior to the start of the survey. . [For the full list of CPT codes, see Attachment J]. Exclusions: The following patients would be excluded from all composites: • Surgical patients whose procedure was greater than 6 months or less than 3 months prior to the start of the survey. • Surgical patients younger than 18 years old. • Surgical patients who are institutionalized (put in the care of a specialized institution) or deceased. • Surgery performed had to be scheduled and not an emergency procedure since emergency procedures are unlikely to have visits with the surgeon before the surgery. • Multiple surgery patients within the same household can be included in the sampling frame. However, once one patient in the household is sampled, any other patients in the same household would be excluded from being sampled in order to minimize survey burden to the household. Adjustment/Stratification: Case-mix adjustment (optional)/No stratification is required for this measure. Level of Analysis: Clinicians: Individual, Group Type of Measure: Composite Data Source: Survey-patient Measure Steward: American College of Surgeons | 20 F Street NW, Suite 1000 | Washington | District of Columbia, 20001
Steering Committee Recommendation for Endorsement: Y-12, N-8; Rationale: The Committee noted the importance of patient centered measures. This measure provides information from the patient perspective regarding their surgical experience.
If applicable, Conditions/Questions for Developer: 1. Provide final data results on the scale 2. Revise the composite submission form to: a) make it easier to understand what is being submitted for review; and b) provide the requested information in the correct section of the submission form.
1. Importance to Measure and Report: Y-16, N-4 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: This measure provides important information regarding quality of care to consumers as well as individual providers and institutions. However, some Committee members were concerned as to whether a survey is a direct link to medical outcomes and unsure if patient perception and experience is a good proxy for quality.
2. Scientific Acceptability of Measure Properties: C-5; P-9; M-2; N-4 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The 40 percent recommended response rate is relatively high and may not be attainable, especially if the survey is administered via mail. Case-mix adjustment is optional for this measure. Some Committee members indicated that case-mix adjustment being optional is not appropriate for a national standard for performance evaluation for accountability. Other Committee members noted that case-mix adjustment is not necessary for internal quality improvement usage and felt there would not be a vast distinction between adjusted and unadjusted data for external public reporting. Committee members also expressed concern of applying one patient experience survey to all surgical specialties and sub-specialties as well as anesthesia. In response to this concern, the measure developer noted that multiple surgical specialties and sub-specialties do support this measure with the exception of the one specialty that raised this concern during comment. In addition, the developer clarified that the questions included in the survey are those that are applicable across all surgical specialties and sub-specialties.
3. Usability: C-6; P-7; M-5; N-2 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: This measure is not currently in use; however, the steward is in the process of integrating the measure into a number of quality programs that are used for public reporting. Adding another survey could potential add burden to the patients causing a decrease

1741 Patient experience with surgical care based on the consumer assessment of healthcare providers and systems (CAHPS) ® surgical care survey
in the proportion of patients participating in every survey.
4. Feasibility: C-5; P-8; M-4; N-3 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: Sampling patients 6 months post-surgery can be complicated and expensive. There may be an inherent bias caused by which patients choose to respond to the survey. There is also a possibility of creating a burden on surgical practices to provide follow-up communication to patients in an effort to retrieve surveys in order to achieve the recommended response rate.
Public and Member Comment • Applicability of the survey to all surgical specialties and sub-specialties as well as anesthesia • Concerns with the validity of the measure and the ability to achieve adequate sample sizes Applicability of the survey to all surgical specialties and sub-specialties as well as anesthesia *Committee Response:* The Committee discussed the comments received regarding whether one survey can appropriately represent all surgical specialties, sub-specialties and anesthesia practices. The Committee understood the concerns with the requirement to use the S-CAHPS survey instead of using a survey that is more specific to a particular specialty. It was mentioned that anesthesia practices have been instructed not to send an additional survey more specifically related to anesthesia because the institutions did not want patients receiving numerous surveys. *Measure Developer Response:* The measure developer noted that multiple surgical specialties and sub-specialties do support this measure with the exception of the one specialty that raised this concern during comment. In addition, the developer clarified that the questions included in the survey are those that are applicable across all surgical specialties and sub-specialties. Concerns with the validity of the measure and the ability to achieve adequate sample sizes *Committee Response:* The Committee discussed the comments received related to the validity of the measure and the current lack of information provided on whether patient experience has been other outcomes. It was noted that this type of testing has not yet been provided for other patient experience measures and it is not unexpected to not have this information on this measure. The Committee also discussed the comments around the implementation concerns of the measure and the responsibility of the surgeon to meet the minimum response rate requirement of 40 percent. Adding another survey could potential add burden to the patients causing a decrease in the proportion of patients participating in every survey as well as a burden on the providers who are responsible for administering the survey. In addition, committee members asked if there were issues with achieving adequate response rates if the sampling methodology did not account for the same patients receiving the HCAHPS survey and that if by increasing the number of surveys sent to patients led to decreased response rates. *Measure Developer Response:* Continuous sampling strategies can be implemented to allow for greater sample sizes over time. While with a one-time administration sample sizes may in fact be very low for some sub-specialties, with continuous sampling, enough data should be collected to meet the CAHPS standard requirements.

Endorsed Measure and Placed into Reserve Status:

0301 Surgery patients with appropriate hair removal
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of surgery patients with surgical hair site removal with clippers or depilatory or no surgical site hair removal. Numerator Statement: Surgery patients with surgical hair site removal with clippers or depilatory or no surgical site hair removal Denominator Statement: All selected surgery patients Include patients with an ICD-9-CM Principal Procedure Codes of selected surgeries. Exclusions: Excluded Populations: Patients less than 18 years of age Patients who have a length of Stay greater than 120 days Patients whose ICD-9-CM principal procedure was performed entirely by laparoscope. Patients enrolled in clinical trials Patients whose ICD-9-CM principal procedure occurred prior to the date of admission Patients who performed their own hair removal Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure.

0301 Surgery patients with appropriate hair removal
Level of Analysis: Facility/ Agency, Can be measured at all levels, Population: National, Program: QIO Type of Measure: Process Data Source: Electronic administrative data/ claims, Electronic Health/ Medical Record: Electronic Provider Survey/ Paper medical record/ flow-sheet Most facilities use vendors to collect the data electronically. CMS provides a free, downloadable tool called CART. A paper tool modeled after the data collected electronically is provided as an attachment. CART downloads can be found on QualityNet.org at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093 Measure Steward: Centers for Medicare & Medicaid Services | 7500 Security Blvd, Mail Stop S3-02-01 | Baltimore | Maryland | 21244
Steering Committee Recommendation for Endorsement: Recommended and placement in Reserve Status Y-14 (reserve); Y-5 (active); N-2; A-1 Rationale: This measure is at a high level of performance but should remain available in the event periodic surveillance demonstrates a drop in performance. It addresses the important concern of surgical site infections (SSI).
If applicable, Conditions/Questions for Developer: Developer Response: If applicable, Questions to the Steering Committee:
1. Importance to Measure and Report: Y-4; N-15 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: This measure is at a high level of performance. Medicare data indicates consistent high performance with a 99.6 percent appropriate rate of hair removal in the second quarter of 2010. Concern about discontinuing regularly reporting was centered on the potential to have performance drop (e.g., return of use of razors the operating room for economic reasons). The measure is on the list of CMS measures to be retired in 2013 or 2014. It would be appropriate to consider reporting the measure as a component of a surgical bundle. There is evidence from randomized trials and systematic review that support the measure focus; though, the Committee noted lack of "absolutely" clear evidence.
2. Scientific Acceptability of Measure Properties: C-10; P-8; M-0; N-1 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The measure is supported by the literature thought it contains numerous exclusions. Both the number and some of the specific exclusions (self hair removal) were discussed in some length and accepted.
3. Usability: C-12; P-5; M-1; N-1 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The measure is part of a group of surgical site infection measures that are publicly reported widely.
4. Feasibility: C-13; P-5; M-1; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The data is drawn from patient health records and claims data.
Public and Member Comment Commenters were not in support of this measure because they believed that 100 percent compliance could occur with the removal of razors from the operating room. CMS is retaining the measure but has decided to suspend data collection requirements to address comments and concerns about the retirement of accountability measures. Evidence supports shaving in select circumstances. To balance the need to reduce the number of measures in active endorsement against having measures available for use if needed, the Steering Committee recommends the measure be endorsed and placed in reserve status.

GENERAL, PROPHYLAXIS and WOUND DEHISCENCE

Endorsed Measures:

0528 Prophylactic antibiotic selection for surgical patients
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Surgical patients who received prophylactic antibiotics consistent with current guidelines (specific to each type of surgical procedure). Numerator Statement: Surgical patients who received recommended prophylactic antibiotics for specific surgical procedures

0528 Prophylactic antibiotic selection for surgical patients

Denominator Statement: All selected surgical patients with no evidence of prior infection.
Included Populations:
An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.10 for ICD-9-CM codes).
AND
An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.01-5.08 for ICD-9-CM codes).
Exclusions: Excluded Populations:
Patients less than 18 years of age
Patients who have a length of Stay greater than 120 days
Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in Appendix A, Table 5.09 for ICD-9-CM codes)
Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope
Patients enrolled in clinical trials
Patients whose ICD-9-CM principal procedure occurred prior to the date of admission
Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure of interest
Patients who expired perioperatively
Patients who were receiving antibiotics more than 24 hours prior to surgery (except colon surgery patients taking oral prophylactic antibiotics)
Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics)
Patients who did not receive any antibiotics before or during surgery, or within 24 hours after Anesthesia End Time (i.e., patient did not receive prophylactic antibiotics)
Patients who did not receive any antibiotics during this hospitalization
Adjustment/Stratification: no risk adjustment necessary/The antibiotic prophylaxis measures are stratified according to surgery type. The tables are subsets of Table 5.10 (see link for Specification Manual and Appendix A, Tables 5.01 to 5.08. The specific procedures must be in the large table (Table 5.10) to be eligible for the SCIP measures. The measure specific tables for SCIP-Inf-2 are 5.01 to 5.08.
Level of Analysis: Facility/ Agency, Population: National, Can be measured at all levels, Program: QIO
Type of Measure: Process
Data Source: Electronic administrative data/ claims; Electronic Health/ Medical Record; Paper medical record/ flow-sheet
Most facilities use vendors to collect the data electronically. CMS provides a free, downloadable tool called CART. A paper tool modeled after the data collected electronically is provided as an attachment. CART downloads can be found on QualityNet.org at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093
Measure Steward: Centers for Medicare & Medicaid Services | 7500 Security Boulevard , Mail Stop S3-01-02 | Baltimore | Maryland | 21244-1850

Steering Committee Recommendation for Endorsement: Y-22; N-1; A-1
Rationale: This measure was described as appropriate and important to encourage continued focus on post-surgical infection.

Steering Committee Follow-up:
This was one of three related measures considered for potential harmonization. The three included: m*aintenance measure 0126*: Selection of antibiotic prophylaxis for cardiac surgery patients; e*ndorsed measure 0268*: Selection of prophylactic antibiotic: First or second generation cephalosporin; and m*aintenance measure 0528*: Prophylactic antibiotic selection for surgical patients. Discussion of the three measures is included here. The Steering Committee determined there were no competing measures in the group. Members made no recommendations for harmonization of measure 0126 which is limited to cardiac surgery and is derived from registry data. Members requested that measures 0268 and 0528 be combined into a single measure from which the cephalosporin data for individual clinicians required by 0268 could be reported as a subset. For the measure not within the current project (AMA-PCPI measure 0268), NQF staff will relay the request of the Committee for developer action as they update and test the measure. The combined measure is expected to be submitted for consideration under the next Surgery Endorsement Maintenance project scheduled to launch in 2013.

1. Importance to Measure and Report: Y-18; N-0
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: The measure is strongly supported by evidence. While performance rates are relatively high, room for improvement remains.

2. Scientific Acceptability of Measure Properties: C-15; P-3; M-0; N-0
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: The science behind the antibiotic selections is good but will need to continue to be harmonized with national guidelines as they come out. The Committee noted that including laparoscopic procedures will no longer be an exclusion effective January 1, 2012, which they supported.

3. Usability: C-16; P-2; M-0; N-0

0528 Prophylactic antibiotic selection for surgical patients

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale: The Committee indicated that the measure will require ongoing harmonization with national guidelines as they are released.

4. Feasibility: C-15; P-3; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale: The Committee stated that the measure was feasible based on data source.

Public and Member Comment

- Should be combined with measure 0527 to create a patient-centered all-or-none composite; and
- Measure relies on a specific type of antibiotic used for compliance

Combine with 0527

This measure is collected as part of a bundle of measures, but a composite measure of antibiotic administration (timing and selection) will be reviewed for consideration. CMS is willing to participate in harmonization efforts with other stakeholders. The Committee noted that while the measure was not submitted for consideration as part of a composite, endorsement as a stand-alone measure does not preclude its reporting with, or inclusion in a composite with, other measures.

Reliance on Specific Type of Antibiotic

The measure specifications are based on several guidelines and therefore have a variety of recommendations, not a single class of antimicrobials. The measure is supported by the evidence. The measure developer is responsible for ongoing monitoring of the evidence and providing updates as the evidence evolves.

0126 Selection of antibiotic prophylaxis for cardiac surgery patients

For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings

Description: Percent of patients aged 18 years and older undergoing cardiac surgery who received preoperative prophylactic antibiotics recommended for the operation.

Numerator Statement: Number of patients undergoing cardiac surgery who received a first generation or second generation cephalosporin prophylactic antibiotic (e.g., cefazolin, cefuroxime, cefamandole) preoperatively or in the event of a documented allergy, an alternate antibiotic choice (e.g., vancomycin, clindamycin) was ordered and administered preoperatively.

Denominator Statement: Number of patients undergoing cardiac surgery

Exclusions: Exclusions include:

- Patients who had a principal diagnosis suggestive of preoperative infectious diseases
- Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope
- Patients enrolled in clinical trials
- Patients with documented infection prior to surgical procedure of interest
- Patients who expired perioperatively
- Patients who were receiving antibiotics more than 24 hours prior to surgery
- Patients who were receiving antibiotics within 24 hours prior to arrival
- Patients who did not receive any antibiotics before or during surgery, or within 24 hours after anesthesia end time (i.e., patient did not receive prophylactic antibiotics)
- Patients who did not receive any antibiotics during this hospitalization

This list will be provided in the STS Adult Cardiac Surgery Database Data Manager's Training Manual as acceptable exclusions. AbxSelect is marked "Exclusion"

Adjustment/Stratification: no risk adjustment necessary N/A N/A

Level of Analysis: Clinicians: Group, Facility/ Agency, Population: Counties or cities, Population: National, Population: Regional/ network, Population: States

Type of Measure: Process

Data Source: Registry data

Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611

Steering Committee Recommendation for Endorsement: Y-22; N-1; A-1

Rationale: The Committee affirmed that the seriousness of infections following these procedures makes this measure and its focus important to track and agreed that 92 percent performance indicates room for continued improvement.

Steering Committee Comments:

This was one of three related measures considered for potential harmonization. The three included: m*aintenance measure 0126*:

0126 Selection of antibiotic prophylaxis for cardiac surgery patients
Selection of antibiotic prophylaxis for cardiac surgery patients; e*ndorsed measure 0268*: Selection of prophylactic antibiotic: First or second generation cephalosporin; and m*aintenance measure 0528*: Prophylactic antibiotic selection for surgical patients. Discussion of the three measures is included here. The Steering Committee determined there were no competing measures in the group. Members made no recommendations for harmonization of measure 0126 which is limited to cardiac surgery and is derived from registry data. Members requested that measures 0268 and 0528 be combined into a single measure from which the cephalosporin data for individual clinicians required by 0268 could be reported as a subset. For the measure not within the current project (AMA-PCPI measure 0268), NQF staff will relay the request of the Committee for developer action as they update and test the measure.
1. Importance to Measure and Report: Y-19; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The evidence indicated that the use of prophylactic antibiotics can decrease the incidence of mediastinitis, which ranges between 0.25 percent and 4 percent. The seriousness of infection in the population measured suggests that even at 92 percent performance, additional improvement should be expected and sought.
2. Scientific Acceptability of Measure Properties: C-15; P-4; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The measure focuses on prophylaxis and measure specifications were considered appropriate and valid.
3. Usability: C-17; P-2; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The measure has been in use since 2007 and is publicly reported on the STS and Consumers Union websites.
4. Feasibility: C-18; P-1; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The measure was considered feasible based on its continued use over time.
Public and Member Comment • Considers the measure to be topped out due to the mean value being greater than 90 percent; and • Should be combined with measure 0126 and 0127 to create a patient-centered all-or-none composite Topped Out Although the mean value is greater than 90 percent, the distribution of values indicates there is opportunity for improvement. Combine Measures 0126 and 0127 The denominator of measures 0117 and 0127 differ from measure 0126. In addition, two of the measures are included in the NQF-endorsed® measure 0696 The STS CABG Composite Score. Endorsement as a stand-alone measure does not preclude use in a composite.

0264 Prophylactic intravenous (IV) antibiotic timing
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Rate of ASC patients who received IV antibiotics ordered for surgical site infection prophylaxis on time Numerator Statement: Number of ambulatory surgical center (ASC) admissions with a preoperative order for a prophylactic IV antibiotic for prevention of surgical site infection who received the prophylactic antibiotic on time Denominator Statement: All ASC admissions with a preoperative order for a prophylactic IV antibiotic for prevention of surgical site infection Exclusions: ASC admissions with a preoperative order for a prophylactic IV antibiotic for prevention of infections other than surgical site infections (e.g., bacterial endocarditis). ASC admissions with a preoperative order for a prophylactic antibiotic not administered by the intravenous route. Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure. Level of Analysis: Facility/ Agency Type of Measure: Process Data Source: Paper medical record/ flow-sheet Measure Steward: ASC Quality Collaboration | 5686 Escondida Blvd S | St. Petersburg | Florida | 33715
Steering Committee Recommendation for Endorsement: Y-18; N-1; A-3 Rationale: This measure was considered important to measure and report despite its small performance gap. The Committee wants to see disparities information prior to making any determination regarding continued reporting of the measure.

0264 Prophylactic intravenous (IV) antibiotic timing

If applicable, Conditions/Questions for Developer:

1. 2a.1 Numerator Statement: Clarify 'on time.' Suggested modification-Instead of 'on time' change to 'one hour.'
2. 2h. Disparities in Care: Please submit any subpopulation performance data that is available for the measures. The committee understands that ASCs do not have a quality reporting system requirement; however, assessment of subpopulation data is important and should be collected and reported for this and other measures.

Developer Response:

In response to your suggestion, we are offering two items for your consideration:

1) Our rational for our current use of 'on time' and
2) What we will do if our rationale is not compelling to the Committee.

For clarification of "on time", please see Section 2a.3. Numerator Details on the measure submission form. The pertinent material is reproduced here:

2a.3. Numerator Details *(All information required to collect or calculate the numerator, including all codes, logic, and definitions)*
DEFINITIONS:
On time: antibiotic infusion is initiated within one hour prior to the time of the initial surgical incision or the beginning of the procedure (e.g., introduction of endoscope, insertion of needle, inflation of tourniquet) or two hours prior if vancomycin or a fluoroquinolone is administered:

This approach was selected in order to allow a concise numerator statement that clearly conveys the performance expectation of the measure, which is that any prophylactic IV antibiotics ordered preoperatively will be given in a timely manner. Defining "on time" separately allows us to avoid inserting a parenthetical modification in the numerator statement to address the two-hour exception for vancomycin and fluoroquinolones. Defining "on time" separately also allows us to simultaneously address several issues pertaining to timeliness: 1) how the time interval is to be measured (from initiation of infusion to the initial surgical incision, 2) how the time interval is to be measured for procedures that do not involve an incision, or that involve the inflation of a tourniquet, and 3) the existence of two allowable timeframes, depending upon the type of antibiotic administered. The data collected using these specifications supports the reliability of this approach. This method has been well received by the facilities that use the measure and we would prefer to continue to specify the measure in this manner.

However, if the measure will not continue to be endorsed in the absence of the modification suggested above , we would then revise the numerator statement to read as follows, which more closely mimics the phrasing of the other related measures:

Number of ambulatory surgical center (ASC) admissions with a preoperative order for a prophylactic IV antibiotic for prevention of surgical site infection with prophylactic antibiotic initiated within one hour prior to surgical incision (two hours if initiating vancomycin or a fluoroquinolone)

We would also delete the current data element definition of "on time" and add a new statement regarding "surgical incision":
DEFINITIONS:
Surgical incision: For purposes of this measure, the initial surgical incision or the beginning of the procedure (e.g., introduction of endoscope, insertion of needle, inflation of tourniquet).

{At this time, we have not made any changes regarding this specific issue to the measure currently on line. We will make the needed changes once we have direction from the steering committee.}

2h. Disparities in Care: Please submit any subpopulation performance data that is available for the measures. The committee understands that ASCs do not have a quality reporting system requirement; however, assessment of subpopulation data is important and should be collected and reported for this and other measures.

Response: The data the ASC Quality Collaboration currently receives for this measure is collected at the ASC-level or at the level of the corporate parent of the ASC. Corporate parent data submissions combine data from multiple ASCs. Disparity measures by population group require the collection of patient-level data or collection of the data for individual populations of patients. At this time, the ASC Quality Collaboration does not have access to any patient-level or individual population level data that would allow for analysis of subpopulation disparities based on race, sex and age. However, we understand the importance of subpopulation data and are taking steps that would allow us to collect the necessary data. We are actively pursuing the development of a registry that would allow us to develop subpopulation performance data for this measure and others. Potential registry development vendors have been identified and initial communications regarding the project have already taken place. We plan to select a vendor by third quarter of 2011, initiate the development of the registry database immediately upon contract acceptance, and have a functioning registry three months thereafter.

ADDITIONAL INFORMATION and Response from Measure Developer:
We have also revised 1b2/1b3/1b4/2f1/2f2/2f3 for this measure #0264 Antibiotic Timing to provide additional clarity:
1b.2. Summary of Data Demonstrating Performance Gap *(Variation or overall poor performance across providers)*
Although data for 671 ASCs are included in the ASC Quality Collaboration (ASC QC) database for this measure, many report at the corporate level and do not report data for individual ASCs. The ASC QC database includes center-level rates for this measure for 349 ASCs throughout the US. The rates for this measure are based on the 349 individually-reporting ambulatory surgery centers,

0264 Prophylactic intravenous (IV) antibiotic timing

located throughout the US. The rate for timely administration of a pre-operative antibiotic ranged from a minimum of 0.2% to a maximum of 100%. The mean rate was 96% (SD: 14.6%), while the median rate was 100%. The minimum compliance rate of 0.2% demonstrates that there is a significant opportunity for improvement in this measure.

1b.3. Citations for Data on Performance Gap

Although data for 671 ASCs are included in the ASC QC database, many report at the corporate level and do not report data for individual ASCs. The ASC QC database includes center-level rates for this measure for 349 ASCs throughout the US. The 349 individually-reporting ambulatory surgery centers represent a convenience sample that may be used to assess the opportunity for improvement for this measure. The centers were located throughout the US. Data collected for second calendar quarter of 2010 were included in this portion of the study.

1b.4. Summary of Data on Disparities by Population Group

This measure is currently collected at the ASC-level or at the level of the corporate parent of the ASC. Disparity measures by population group require the collection of patient-level data or collection of the data for individual populations of patients. The ASC QC is investigating a number of strategies that will make this type of data available and hopes to add this component in the near future.

2f.1. Data/Sample (Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included)

Although data for 671 ASCs are included in the ASC QC database, many report at the corporate level and do not report data for individual ASCs. The ASC QC database includes center-level rates for this measure for 349 ASCs throughout the US. The rates for this measure were collected for the 349 individually-reporting ambulatory surgery centers throughout the US for services provided during April to June 2010.

2f.2. Methods to Identify Statistically Significant and Practical or Meaningful Differences in Performance (Type of analysis and rationale)

An individual ASC's rate for timely administration of antibiotic may be compared to the standard rate from the ASC Quality website (http://www.ascquality.org/qualityreport.cfm#Antibiotic). A statistically significant difference in performance may be detected by using a standard test of proportions as outlined in most standard statistical texts. Since each delay in administration of the preoperative antibiotic may represent increased surgical site infection risk for the patient, a rate lower than the 94.4% is also of practical significance.

The null hypothesis for this test is that the sample proportion from the ASC is not different from the industry standard taken from the ASC Quality website. The alternative is that there is a statistically significant difference. We recommend that this test be performed in its two-sided form so that the ASC may determine if they are either statistically higher or lower than the standard. The recommended p-value for this test is the 0.05 level, but ASCs may have justification for different value. Using this statistical method for detecting significant variances from the industry standard will allow users to determine if differences may be due to sampling error or may indicate a true difference in performance.

2f.3. Measure Scores from Testing or Current Use (Description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)The rate for timely administration of antibiotic ranged from a minimum of 0.2% to a maximum of 100%. The mean rate was 96.0% (SD: 14.6%), while the median rate was 100%. The maximum rates of 100% and a third quartile value of 100% demonstrate that there is an opportunity for improvement in this measure and that full compliance (100%) is achievable for all centers.

Steering Committee Follow-Up:

The Steering Committee agreed that the response from the developer was adequate.

1. Importance to Measure and Report: Y-17; N-2

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: Performance on the measure is high; however disparities information is not presented. ASC noted that only about 900 of the eligible 5,200 institutions report.

2. Scientific Acceptability of Measure Properties: C-10; P-9; M-0; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale: The Committee questioned why the measure focused on antibiotics being provided in a one hour timeframe.

3. Usability: C-12; P-7; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale: The Committee described the measure as usable.

4. Feasibility: C-13; P-6; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

0264 Prophylactic intravenous (IV) antibiotic timing
Rationale: The measure uses procedure codes, which makes it less burdensome for ambulatory surgical centers to collect.
Public and Member Comment Commenters showed support for the measure but recommended that ongoing assessment of the measure occur. The ASC Quality Collaboration reviews its measures on an annual or as needed basis to ensure they remain consistent with the evidence base. Modifications are made as needed.

0527 Prophylactic antibiotic received within 1 hour prior to surgical incision
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Surgical patients with prophylactic antibiotics initiated within one hour prior to surgical incision. Patients who received vancomycin or a fluoroquinolone for prophylactic antibiotics should have the antibiotics initiated within two hours prior to surgical incision. Due to the longer infusion time required for vancomycin or a fluoroquinolone, it is acceptable to start these antibiotics within two hours prior to incision time. Numerator Statement: Number of surgical patients with prophylactic antibiotics initiated within one hour prior to surgical incision (two hours if receiving vancomycin, in Appendix C, Table 3.8, or a fluoroquinolone, in Appendix C, Table 3.10). Denominator Statement: All selected surgical patients with no evidence of prior infection. Table 5.10 is the complete table of selected major surgeries Exclusions: Patients less than 18 years of age Patients who have a Length of Stay greater than 120 days Patients who had a hysterectomy and a caesarean section performed during this hospitalization Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in Appendix A, Table 5.09 for ICD-9-CM codes) Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope Patients enrolled in clinical trials Patients whose ICD-9-CM principal procedure occurred prior to the date of admission Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure of interest Patients who had other procedures requiring general or spinal anesthesia that occurred within 3 days (4 days for CABG or Other Cardiac Surgery) prior to or after the procedure of interest (during separate surgical episodes) during this hospital stay Patients who were receiving antibiotics more than 24 hours prior to surgery Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics) Adjustment/Stratification: no risk adjustment necessary/The antibiotic prophylaxis measures are stratified according to surgery type. The tables are subsets of Table 5.10 (see link for Specification Manual and Appendix A, Tables 5.01 to 5.08. The specific procedures must be in the large table (Table 5.10) to be eligible for the SCIP measures. The measure specific tables for SCIP-Inf-1 are 5.01 to 5.08. Level of Analysis: Can be measured at all levels, Facility/ Agency, Population: National, Program: QIO Type of Measure: Process Data Source: Electronic administrative data/ claims, Electronic Health/ Medical Record, Paper medical record/ flow-sheet Most facilities use vendors to collect and submit the data electronically. CMS provides a free, downloadable tool called CART. A paper tool modeled after the data collected electronically is provided as an attachment. CART downloads can be found on QualityNet.org at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093 Measure Steward: Centers for Medicare & Medicaid Services | 7500 Security Boulevard , Mail Stop S3-01-02 | Baltimore | Maryland | 21244-1850
Steering Committee Recommendation for Endorsement: Y-21; N-2; A-1 Rationale: The measure focus and specifications are appropriate. Performance presents disparity data that demonstrates performance gaps across subpopulations.
Steering Committee Follow-up: This was one of five related measures considered for potential harmonization. The five included: m*aintenance measure 0125*: Timing of antibiotic prophylaxis for cardiac surgery patients; e*ndorsed measure 0269*: Timing of prophylactic antibiotics-administering physician; e*ndorsed measure 0270*: Timing of antibiotic prophylaxis-ordering physician; m*aintenance measure 0527*: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1; and e*ndorsed measure: 0472*: Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery-cesarean section. Discussion of the five measures is included here. The Steering Committee requested that the developer of measures 0270 and 0269, neither of which are under consideration in this project, be approached by NQF staff to determine the current state of these measures and encourage them to consider combining them into a single measure that focuses on administration. Based on their opinion that timing of antibiotics administration prior to surgical incision,

0527 Prophylactic antibiotic received within 1 hour prior to surgical incision
including for cardiac surgery, should not be different. Members asked that the developers of the five measures be asked to collaborate on the potential for combining the measures into a single measure that, to the extent possible, closely mirrors measure 0527. As part of that effort, they asked that the developer of measure 0472 provide information about any differences that would make administration of antibiotic at delivery unique. They did not view incision for cesarean unique. With respect to measure 0125, they asked that the developer provide information about whether registry data would provide significantly different outcomes than administrative/claims data across institutions. For the measures not within the current project (AMA-PCPI measure 0269 and 270 and Massachusetts General measure 0472), NQF staff will relay the request of the Committee for their action and feedback. The combined measure is expected to be submitted for consideration under the next Surgery Endorsement Maintenance project scheduled to launch in 2013.
If applicable, Conditions/Questions for Developer: Developer Response: If applicable, Questions to the Steering Committee:
1. Importance to Measure and Report: Y-19; N-0 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The measure focus is supported by the evidence. While the performance gap has been reduced over time, the measure continues to demonstrate a performance gap that could be improved. It was also noted that the gap still exists for general surgeries compared with cardiac surgeries.
2. Scientific Acceptability of Measure Properties: C-13; P-6; M-0; N-0 *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale: The measure focus and specifications are appropriate. The request that laparoscopic procedure be removed from the exclusions will become effective January 1, 2012.
3. Usability: C-14; P-5; M-0; N-0 *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale: The measure has been widely used for some time; harmonization with the similar measures below should be considered: #0125: Timing of antibiotic prophylaxis for cardiac surgery patients #0269: Timing of prophylactic antibiotics - administering physician #0270: Timing of antibiotic prophylaxis- ordering physician #0472: Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
4. Feasibility: C-18; P-1; M-0; N-0 *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale: The Committee stated that the measure was feasible based on the data required and its record of use.
Public and Member Comment Commenters suggested the measure be combined with measure 0528 to create a patient-centered all-or-none composite. This measure is collected as part of a bundle of measures, but a composite measure of antibiotic administration (timing and selection) will be reviewed for consideration. CMS is willing to participate in harmonization efforts with other stakeholders. The Committee noted that while the measure was not submitted for consideration as part of a composite, endorsement as a stand-alone measure does not preclude its reporting with, or inclusion in a composite with, other measures.

0128 Duration of antibiotic prophylaxis for cardiac surgery patients
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percent of patients aged 18 years and older undergoing cardiac surgery whose prophylactic antibiotics were discontinued within 48 hours after surgery end time Numerator Statement: Number of patients undergoing cardiac surgery whose prophylactic antibiotics were discontinued within 48 hours after surgery end time Denominator Statement: Number of patients undergoing cardiac surgery Exclusions: Exclusions: -Patients who had a principal diagnosis suggestive of preoperative infectious diseases -Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope -Patients enrolled in clinical trials -Patients with documented infection prior to surgical procedure of interest -Patients who expired perioperatively -Patients who were receiving antibiotics more than 24 hours prior to surgery

0128 Duration of antibiotic prophylaxis for cardiac surgery patients

-Patients who were receiving antibiotics within 24 hours prior to arrival
-Patients who did not receive any antibiotics during this hospitalization
-Patients with reasons to extend antibiotics
This list will be provided in the STS Adult Cardiac Surgery Database Data Manager's Training Manual as acceptable exclusions.
Adjustment/Stratification: no risk adjustment necessary/No stratification is required for this measure.
Level of Analysis: Clinicians: Group, Facility/ Agency, Population: Counties or cities, Population: National, Population: Regional/ network, Population: States
Type of Measure: Process
Data Source: Registry data
Measure Steward: Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611

Steering Committee Recommendation for Endorsement: Y-17, N-0; A-0
Rationale: The measure was considered important due to the potential for prolonged antibiotic use and the percent of antimicrobial resistance.

Steering Committee Follow-up:
This was one of four related measures considered for potential harmonization. The four included: m*aintenance measure 0529*: Prophylactic antibiotics discontinued within 24 hours after surgery end time; e*ndorsed measure 0637*: Discontinuation of prophylactic antibiotics (cardiac procedures); m*aintenance measure 0128*: Duration of antibiotic prophylaxis for cardiac surgery patients; and e*ndorsed measure 0271*: Discontinuation of prophylactics antibiotics (non-cardiac procedures). Discussion of the four measures is included here. The Steering Committee determined there were no competing measures in the group. Members requested that the developers evaluate the extent to which harmonization of the four measures could be accomplished. They asked that initial focus be on refining the exclusions to ensure they capture the same information and that end times of 24 and 48 hours be examined in terms of whether there are cardiac surgeries for which the different end times are specifically indicated and if so that they be specified for capture within the relevant measures. Also, members asked that the laparoscopy exclusion be removed from Measure 0128. For those measures not within the current project (AMA-PCPI measures 0637 and 0271), NQF staff will relay the requests of the Committee for their action as they update and test the measures.

The measure developers provided a response to the Committee's request. The developers are currently working to schedule a conference call to begin discussing harmonization and/or combining the antibiotic prophylaxis measures per the Committee's request. On the November 29 call, the Committee agreed to recommend measure 0128 as it currently stands with the expectation that the harmonized measure will be submitted to the next Surgery project in 2013. The Committee will vote on final recommendation for endorsement of this measure following the conference call.

1. Importance to Measure and Report: Y-18, N-1
(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)
Rationale: The measure noted a performance gap in appropriate antibiotic administration, which can increase the incidence of deep sternal wound infection or antimicrobial resistance.

2. Scientific Acceptability of Measure Properties: C-10; P-6; M-2; N-1
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)
Rationale: The Committee debated the time period for antibiotic discontinuation reviewing the merits of 48 hours versus 24 hours.

3. Usability: C-13; P-6; M-0; N-0
(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)
Rationale: The measure will be reported as part of a composite in the future.

4. Feasibility: C-11; P-8; M-0; N-0
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)
Rationale: The measure presented minimal evidence of costs.

Public and Member Comment

- Lack of support for process measures

Committee Response: The Committee concluded that measures 0128 and 0529 were essential and should maintain endorsement due to the current performance being below 90 percent for various populations. The Committee noted that it would be difficult to capture a prophylactic antibiotic outcome measure (e.g., development of an antibiotic resistance measure) that was patient-specific for this topic area. Evidence in this field currently supports the linkage between process and outcome; however, NQF will continue to seek outcome

0128 Duration of antibiotic prophylaxis for cardiac surgery patients
measures that can supplement or over time replace process measures. *Measure Developer Response:* Meta-Analysis results show that deep sternal wound infections and surgical site infections are reduced with administration of prophylactic antibiotics for ≥ 24 hours, but no longer than 48 hours. In this meta-analysis, longer-term antibiotic perioperative prophylaxis (≥24 hours) in cardiac surgery was associated with reduced sternal surgical site infections when compared with short-term antibiotic prophylaxis (<24 hours) (Mertz D, Johnstone J, Loeb M. Does duration of perioperative antibiotic prophylaxis matter in cardiac surgery? A systematic review and meta-analysis. Ann Surg 2011; 254: 48-54.). The most relevant outcome is deep wound infection in about 3% of patients. This is more patients than a single program ever has available to conduct a study. By measuring this process it will help reduce the outcomes of deep sternal wound infections and surgical site infections. This outcome has a very difficult methodology to study, which is why STS thinks a process measure that is tightly linked to an outcome is the best measurement approach, which this measure is. Process measures that have a close relationship with outcomes we think are appropriate.

0529 Prophylactic antibiotics discontinued within 24 hours after surgery end time
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Surgical patients whose prophylactic antibiotics were discontinued within 24 hours after Anesthesia End Time (48 hours for CABG or Other Cardiac Surgery). The Society of Thoracic Surgeons (STS) Practice Guideline for Antibiotic Prophylaxis in Cardiac Surgery (2006) indicates that there is no reason to extend antibiotics beyond 48 hours for cardiac surgery and very explicitly states that antibiotics should not be extended beyond 48 hours even with tubes and drains in place for cardiac surgery. Numerator Statement: Number of surgical patients whose prophylactic antibiotics were discontinued within 24 hours after Anesthesia End Time (48 hours for CABG or Other Cardiac Surgery). Denominator Statement: All selected surgical patients with no evidence of prior infection. Included Populations: An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.10 for ICD-9-CM codes) AND An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.01-5.08 for ICD-9-CM codes) Exclusions: Excluded Populations: Patients less than 18 years of age Patients who have a length of Stay greater than 120 days Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in Appendix A, Table 5.09 for ICD-9-CM codes) Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope Patients enrolled in clinical trials Patients whose ICD-9-CM principal procedure occurred prior to the date of admission Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure of interest Patients who expired perioperatively Patients who had other procedures requiring general or spinal anesthesia that occurred within three days (four days for CABG or Other Cardiac Surgery) prior to or after the procedure of interest (during separate surgical episodes) during this hospital stay Patients who were receiving antibiotics more than 24 hours prior to surgery (except colon surgery patients taking oral prophylactic antibiotics) Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics) Patients who did not receive any antibiotics during this hospitalization. Patients who received urinary antiseptics only (as defined in Appendix C, Table 3.11) Patients with Reasons to Extend Antibiotics. Adjustment/Stratification: no risk adjustment necessary/The antibiotic prophylaxis measures are stratified according to surgery type. The tables are subsets of Table 5.10 (see link for Specification Manual and Appendix A, Tables 5.01 to 5.08. The specific procedures must be in the large table (Table 5.10) to be eligible for the SCIP measures. The measure specific tables for SCIP-Inf-3 are 5.01 to 5.08 Level of Analysis: Facility/ Agency, Population: National, Can be measured at all levels, Program: QIO Type of Measure: Process Data Source: Electorinc administrative data/ claims; Electronic Health/ Medical Record; Paper medical record/ flow-sheet Most facilities use vendors to collect the data electronically. CMS provides a free, downloadable tool called CART. A paper tool modeled after the data collected electronically is provided as an attachment. CART downloads can be found on QualityNet.org at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093 Measure Steward: Centers for Medicare & Medicaid Services | 7500 Security Boulevard , Mail Stop S3-01-02 | Baltimore | Maryland | 21244-1850

0529 Prophylactic antibiotics discontinued within 24 hours after surgery end time

Steering Committee Recommendation for Endorsement: Y-17; N-0; A-0

Rationale: The measure is important and provides an appropriate timeline for discontinuing antibiotic therapy promoting appropriate use of antibiotics.

Steering Committee Comments:

This was one of four related measures considered for potential harmonization. The four included: m*aintenance measure 0529*: Prophylactic antibiotics discontinued within 24 hours after surgery end time; e*ndorsed measure 0637*: Discontinuation of prophylactic antibiotics (cardiac procedures); m*aintenance measure 0128*: Duration of antibiotic prophylaxis for cardiac surgery patients; and e*ndorsed measure 0271*: Discontinuation of prophylactics antibiotics (non-cardiac procedures). Discussion of the four measures is included here. The Steering Committee determined there were no competing measures in the group. Members requested that the developers evaluate the extent to which harmonization of the four measures could be accomplished. They asked that initial focus be on refining the exclusions to ensure they capture the same information and that end times of 24 and 48 hours be examined in terms of whether there are cardiac surgeries for which the different end times are specifically indicated and if so that they be specified for capture within the relevant measures. Also, members asked that the laparoscopy exclusion be removed from Measure 0128. For those measures not within the current project (AMA-PCPI measures 0637 and 0271), NQF staff will relay the requests of the Committee for their consideration as they update and test the measures.

The measure developers provided a response to the Committee's request. The developers are currently working to schedule a conference call to begin discussing harmonization or combining the antibiotic prophylaxis measures per the Committee's request. On the November 29 call, the Committee agreed to recommend measure 0529 as it currently stands with the expectation that the harmonized measure will be submitted to the next Surgery project in 2013. The Committee will vote on final recommendation for endorsement of this measure following the conference call.

1. Importance to Measure and Report: Y-19; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: The measure has a small performance gap but includes evidence that disparities among subpopulations demonstrate performance below 90 percent.

2. Scientific Acceptability of Measure Properties: C-14; P-4; M-1; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale: The Committee discussed single dose prophylaxis compared with 24 hour prophylaxis and no post-operative prophylaxis noting the timeframe of this measure is standard at present. They also discussed requesting the measure's 24 hour timeframe to be changed to shorten duration when the evidence supports. The laparoscopic exclusion is removed effective January 1, 2012.

3. Usability: C-18; P-1; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale: The measure is currently in use and is part of the Surgical Care Improvement Project (SCIP) measure set.

4. Feasibility: C-16; P-3; M-0; N-0

(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)

Rationale: The measure relies on administrative claims data.

Public and Member Comment

- Lack of support for process measures
- May be a candidate for reserve status during the next maintenance cycle

Lack of support for process measures

Committee Response: The Committee concluded that measures 0128 and 0529 were essential and should maintain endorsement due to the current performance being below 90 percent for various populations. The Committee noted that it would be difficult to capture a prophylactic antibiotic outcome measure (e.g., development of an antibiotic resistance measure) that was patient-specific for this topic area. Evidence in this field currently supports the linkage between process and outcome; however, NQF will continue to seek outcome measures that can supplement or over time replace process measures.

Measure Developer Response: This particular performance measure focuses on discontinuation of antibiotics after surgery which does not impact SSI rates (studies have never shown that duration of postoperative antibiotics impact surgical infection rates). This particular measure focuses on stopping antibiotics (antibiotic stewardship) which should reduce antibiotic resistance (much more difficult to measure as an outcome). Prior studies have shown that when antibiotics are continued for prolonged periods after surgery, those

0529 Prophylactic antibiotics discontinued within 24 hours after surgery end time
surgical site infections that do occur are more likely to involve an antibiotic-resistant organism. This is an important measure that has promoted reduced use of unnecessary antibiotics. There has been continued movement towards the use of outcomes measures and beginning this year; hospitals are required to report surgical infection rates using the National Healthcare Safety Network (NHSN) on a limited set of operations. May be a candidate for reserve status during the next maintenance cycle *Committee Response:* The Committee recommended for continued use of this measure and not for reserve status at this time due to a performance gap (below 90 percent) shown in the disparities data. *Measure Developer Response:* We agree with the need to continue to monitor national performance on this measure. Rates for this measure (including benchmarks) are calculated quarterly and forwarded to CMS for evaluation. While national performance on this measure has improved considerably since 2005, there remains variation in performance between hospitals. This is also a measure where there is considerable concern about the possibility of backsliding if not monitored. This measure remains as one of the only national measures that focus on antibiotic stewardship.

Measures not Recommended for Endorsement:

0367 Post operative wound dehiscence (PDI 11)
For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of abdominopelvic surgery cases with reclosure of postoperative disruption of abdominal wall. Numerator Statement: Discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD-9-CM procedure code for reclosure of postoperative disruption of abdominal wall. Denominator Statement: All abdominopelvic surgical discharges under age 18. Exclusions: Exclude cases: • where a procedure for reclosure of postoperative disruption of abdominal wall occurs before or on the same day as the first abdominopelvic surgery procedure Note: If day of procedure is not available in the input data file, the rate may be slightly lower than if the information was available • Where length of stay is less than 2 days • With any diagnosis of high- or immediate-risk immunocompromised state • With an procedure code for transplant • With hepatitis failure consisting of any diagnosis of cirrhosis plus a code for hepatic coma or hepatorenal syndrome in any diagnosis field with procedure code for gastroschisis or umbilical hernia repair in newborns (omphalacele repair) performed before reclosure • MDC 14 (pregnancy, childbirth, and puerperium) • neonates with birth weight less than 500 grams (Birth Weight Category 1) Adjustment/Stratification: Risk adjustment method widely or commercially available/The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, birth weight (500g groups), age in days (29-60, 61-90, 91+), age in years (in 5-year age groups), modified CMS DRG and AHRQ CCS comorbidities. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007 (updated annually), a database consisting of 43 states and approximately 6 million pediatric discharges. 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, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. Required data elements: CMS Diagnosis Related Group (DRG); CMS Major Diagnostic Category (MDC); age in days up to 364, then age years at admission; International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) principal and secondary diagnosis codes/Clinical stratification for PDIs 10 and 11 is divided into four categories based on surgical class associated with the DRG or MS-DRG and whether or not the admission type is elective (SID ATYPE=3), as shown in the table below. PDI 10 and PDI 11 Clinical Stratification Categories Clinical Stratification Surgical Class DRG

0367 Post operative wound dehiscence (PDI 11)
Admission Type
Strata 1. Clean Procedures Elective
1
Elective
Strata 2. Clean Procedures Non-Elective
1
Not Elective
Strata 3. Potentially Contaminated Elective
2, 3, or 9
Elective
Strata 4. Potentially Contaminated Non-Elective
2, 3, or 9
Not Elective
Surgical Class 1 DRGs
For discharges using DRGs (before October 1, 2007)
DRG - TITLE
003 - CRANIOTOMY AGE 0-17
006 - CARPAL TUNNEL RELEASE
007 - PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W CC
008 - PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W/O CC
036 - RETINAL PROCEDURES
037 - ORBITAL PROCEDURES
038 - PRIMARY IRIS PROCEDURES
039 - LENS PROCEDURES WITH OR WITHOUT VITRECTOMY
041 - EXTRAOCULAR PROCEDURES EXCEPT ORBIT AGE 0-17
042 - INTRAOCULAR PROCEDURES EXCEPT RETINA, IRIS & LENS
049 - MAJOR HEAD & NECK PROCEDURES
050 - SIALOADENECTOMY
DRG - TITLE
051 - SALIVARY GLAND PROCEDURES EXCEPT SIALOADENECTOMY
052 - CLEFT LIP & PALATE REPAIR
054 - SINUS & MASTOID PROCEDURES AGE 0-17
055 - MISCELLANEOUS EAR, NOSE, MOUTH & THROAT PROCEDURES
056 - RHINOPLASTY
058 - T&A PROC, EXCEPT TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE 0-17
060 - TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE 0-17
062 - MYRINGOTOMY W TUBE INSERTION AGE 0-17
063 - OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES
DRG - TITLE
103 - HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM
104 - CARDIAC VALVE & OTH MAJOR CARDIOTHORACIC PROC W CARD CATH
105 - CARDIAC VALVE & OTH MAJOR CARDIOTHORACIC PROC W/O CARD CATH
106 - CORONARY BYPASS W PTCA
108 - OTHER CARDIOTHORACIC PROCEDURES
110 - MAJOR CARDIOVASCULAR PROCEDURES W CC
111 - MAJOR CARDIOVASCULAR PROCEDURES W/O CC
113 - AMPUTATION FOR CIRC SYSTEM DISORDERS EXCEPT UPPER LIMB & TOE
114 - UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS

0367 Post operative wound dehiscence (PDI 11)
117 - CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT
118 - CARDIAC PACEMAKER DEVICE REPLACEMENT
119 - VEIN LIGATION & STRIPPING
120 - OTHER CIRCULATORY SYSTEM O.R. PROCEDURES
163 - HERNIA PROCEDURES AGE 0-17
168 - MOUTH PROCEDURES W CC
169 - MOUTH PROCEDURES W/O CC
212 - HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE 0-17
213 - AMPUTATION FOR MUSCULOSKELETAL SYSTEM & CONN TISSUE DISORDERS
216 - BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE
217 - WND DEBRID & SKN GRFT EXCEPT HAND,FOR MUSCSKELET & CONN TISS DIS
220 - LOWER EXTREM & HUMER PROC EXCEPT HIP,FOOT,FEMUR AGE 0-17
223 - MAJOR SHOULDER/ELBOW PROC, OR OTHER UPPER EXTREMITY PROC W CC
224 - SHOULDER,ELBOW OR FOREARM PROC,EXC MAJOR JOINT PROC, W/O CC
225 - FOOT PROCEDURES
226 - SOFT TISSUE PROCEDURES W CC
227 -SOFT TISSUE PROCEDURES W/O CC
228 - MAJOR THUMB OR JOINT PROC,OR OTH HAND OR WRIST PROC W CC
229 - HAND OR WRIST PROC, EXCEPT MAJOR JOINT PROC, W/O CC
230 - LOCAL EXCISION & REMOVAL OF INT FIX DEVICES OF HIP & FEMUR
232 - ARTHROSCOPY
233 - OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W CC
DRG - TITLE
234 - OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W/O CC
257 - TOTAL MASTECTOMY FOR MALIGNANCY W CC
258 - TOTAL MASTECTOMY FOR MALIGNANCY W/O CC
259 - SUBTOTAL MASTECTOMY FOR MALIGNANCY W CC
260 - SUBTOTAL MASTECTOMY FOR MALIGNANCY W/O CC
261 - BREAST PROC FOR NON-MALIGNANCY EXCEPT BIOPSY & LOCAL EXCISION
262 - BREAST BIOPSY & LOCAL EXCISION FOR NON-MALIGNANCY
285 - AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DISORDERS
286 - ADRENAL & PITUITARY PROCEDURES
287 - SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DISORDERS
289 - PARATHYROID PROCEDURES
290 - THYROID PROCEDURES
291 - THYROGLOSSAL PROCEDURES
292 - OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W CC
293 - OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W/O CC
338 - TESTES PROCEDURES, FOR MALIGNANCY
340 - TESTES PROCEDURES, NON-MALIGNANCY AGE 0-17
393 - SPLENECTOMY AGE 0-17
394 - OTHER O.R. PROCEDURES OF THE BLOOD AND BLOOD FORMING ORGANS
471 - BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY
479 - OTHER VASCULAR PROCEDURES W/O CC
481 - BONE MARROW TRANSPLANT
491 - MAJOR JOINT & LIMB REATTACHMENT PROCEDURES OF UPPER EXTREMITY
496 - COMBINED ANTERIOR/POSTERIOR SPINAL FUSION
497 - SPINAL FUSION EXCEPT CERVICAL W CC

0367 Post operative wound dehiscence (PDI 11)
498 - SPINAL FUSION EXCEPT CERVICAL W/O CC
499 - BACK & NECK PROCEDURES EXCEPT SPINAL FUSION W CC
500 - BACK & NECK PROCEDURES EXCEPT SPINAL FUSION W/O CC
501 - KNEE PROCEDURES W PDX OF INFECTION W CC
502 - KNEE PROCEDURES W PDX OF INFECTION W/O CC
503 - KNEE PROCEDURES W/O PDX OF INFECTION
515 - CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH
DRG - TITLE
518 - PERC CARDIO PROC W/O CORONARY ARTERY STENT OR AMI
519 - CERVICAL SPINAL FUSION W CC
520 - CERVICAL SPINAL FUSION W/O CC
525 - OTHER HEART ASSIST SYSTEM IMPLANT
528 - INTRACRANIAL VASCULAR PROC W PDX HEMORRHAGE
529 - VENTRICULAR SHUNT PROCEDURES W CC
530 - VENTRICULAR SHUNT PROCEDURES W/O CC
531 - SPINAL PROCEDURES W CC
532 - SPINAL PROCEDURES W/O CC
533 - EXTRACRANIAL PROCEDURES W CC
534 - EXTRACRANIAL PROCEDURES W/O CC
535 - CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK
536 - CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK
537 - LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W CC
538 - LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W/O CC
543 - CRANIOTOMY W MAJOR DEVICE IMPLANT OR ACUTE COMPLEX CNS PRINCIPAL DIAGNOSIS
544 - MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY
545 - REVISION OF HIP OR KNEE REPLACEMENT
DRG - TITLE
546 - SPINAL FUSION EXC CERV WITH CURVATURE OF THE SPINE OR MALIG
547 - CORONARY BYPASS W CARDIAC CATH W MAJOR CV DX
548 - CORONARY BYPASS W CARDIAC CATH W/O MAJOR CV DX
549 - CORONARY BYPASS W/O CARDIAC CATH W MAJOR CV DX
550 - CORONARY BYPASS W/O CARDIAC CATH W/O MAJOR CV DX
551 - PERMANENT CARDIAC PACEMAKER IMPL W MAJ CV DX OR AICD LEAD OR GNRTR
552 - OTHER PERMANENT CARDIAC PACEMAKER IMPLANT W/O MAJOR CV DX
553 - OTHER VASCULAR PROCEDURES W CC W MAJOR CV DX
554 - OTHER VASCULAR PROCEDURES W CC W/O MAJOR CV DX
555 - PERCUTANEOUS CARDIOVASCULAR PROC W MAJOR CV DX
556 - PERCUTANEOUS CARDIOVASC PROC W NON-DRUG-ELUTING STENT W/O MAJ CV DX
557 - PERCUTANEOUS CARDIOVASCULAR PROC W DRUG-ELUTING STENT W MAJOR CV DX
558 - PERCUTANEOUS CARDIOVASCULAR PROC W DRUG-ELUTING STENT W/O MAJ CV DX
577 - CAROTID ARTERY STENT PROCEDURE
Surgical Class 1 MS-DRGs
For discharges using MS-DRGs (on or after October 1, 2007)
MS-DRG - TITLE
001 - HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM W MCC
002 - HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM W/O MCC
009 - BONE MARROW TRANSPLANT
020 - INTRACRANIAL VASCULAR PROCEDURES W PDX HEMORRHAGE W MCC

0367 Post operative wound dehiscence (PDI 11)
021 - INTRACRANIAL VASCULAR PROCEDURES W PDX HEMORRHAGE W CC
022 - INTRACRANIAL VASCULAR PROCEDURES W PDX HEMORRHAGE W/O CC/MCC
023 - CRANIO W MAJOR DEV IMPL/ACUTE COMPLEX CNS PDX W MCC OR CHEMO IMPLANT
024 - CRANIO W MAJOR DEV IMPL/ACUTE COMPLEX CNS PDX W/O MCC
027 - CRANIOTOMY & ENDOVASCULAR INTRACRANIAL PROCEDURES W/O
MS-DRG - TITLE
CC/MCC
028- SPINAL PROCEDURES W MCC
029 - SPINAL PROCEDURES W CC OR SPINAL NEUROSTIMULATORS
030 - SPINAL PROCEDURES W/O CC/MCC
031 - VENTRICULAR SHUNT PROCEDURES W MCC
032 - VENTRICULAR SHUNT PROCEDURES W CC
033 - VENTRICULAR SHUNT PROCEDURES W/O CC/MCC
034 - CAROTID ARTERY STENT PROCEDURE W MCC
035 - CAROTID ARTERY STENT PROCEDURE W CC
036 - CAROTID ARTERY STENT PROCEDURE W/O CC/MCC
037 - EXTRACRANIAL PROCEDURES W MCC
038 - EXTRACRANIAL PROCEDURES W CC
039 - EXTRACRANIAL PROCEDURES W/O CC/MCC
AHRQ Quality Indicators Web Site: http://www.qualityindicators.ahrq.gov
Pediatric Quality Indicators Technical Specifications Version 4.2– 2010
PDI #11 Postoperative Wound Dehiscence Page 10
MS-DRG - TITLE
040 - PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W MCC
041 - PERIPH/CRANIAL NERVE & OTHER NERV SYST PROC W CC OR PERIPH NEUROSTIM
042 - PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W/O CC/MCC
113 - ORBITAL PROCEDURES W CC/MCC
114 - ORBITAL PROCEDURES W/O CC/MCC
115 - EXTRAOCULAR PROCEDURES EXCEPT ORBIT
116 - INTRAOCULAR PROCEDURES W CC/MCC
117 - INTRAOCULAR PROCEDURES W/O CC/MCC
129 - MAJOR HEAD & NECK PROCEDURES W CC/MCC OR MAJOR DEVICE
130 - MAJOR HEAD & NECK PROCEDURES W/O CC/MCC
131 - CRANIAL/FACIAL PROCEDURES W CC/MCC
132 - CRANIAL/FACIAL PROCEDURES W/O CC/MCC
133 - OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W CC/MCC
134 - OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W/O CC/MCC
136 - SINUS & MASTOID PROCEDURES W/O CC/MCC
137 - MOUTH PROCEDURES W CC/MCC
138 - MOUTH PROCEDURES W/O CC/MCC
139 - SALIVARY GLAND PROCEDURES
215 - OTHER HEART ASSIST SYSTEM IMPLANT
216 - CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W CARD CATH W MCC
217 - CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W CARD CATH W CC
218 - CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W CARD CATH W/O CC/MCC
219 - CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W MCC
220 - CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W CC
221 - CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W/O CC/MCC

0367 Post operative wound dehiscence (PDI 11)
222 - CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK W MCC
223 - CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK W/O MCC
224 - CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK W MCC
225 - CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK W/O MCC
MS-DRG - TITLE
226 - CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH W MCC
227 - CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH W/O MCC
228 - OTHER CARDIOTHORACIC PROCEDURES W MCC
229 - OTHER CARDIOTHORACIC PROCEDURES W CC
230 - OTHER CARDIOTHORACIC PROCEDURES W/O CC/MCC
231 - CORONARY BYPASS W PTCA W MCC
232 - CORONARY BYPASS W PTCA W/O MCC
233 - CORONARY BYPASS W CARDIAC CATH W MCC
234 - CORONARY BYPASS W CARDIAC CATH W/O MCC
235 - CORONARY BYPASS W/O CARDIAC CATH W MCC
236 - CORONARY BYPASS W/O CARDIAC CATH W/O MCC
237 - MAJOR CARDIOVASC PROCEDURES W MCC OR THORACIC AORTIC ANUERYSM REPAIR
238 - MAJOR CARDIOVASCULAR PROCEDURES W/O MCC
239 - AMPUTATION FOR CIRC SYS DISORDERS EXC UPPER LIMB & TOE W MCC
240 - AMPUTATION FOR CIRC SYS DISORDERS EXC UPPER LIMB & TOE W CC
241 - AMPUTATION FOR CIRC SYS DISORDERS EXC UPPER LIMB & TOE W/O CC/MCC
242 - PERMANENT CARDIAC PACEMAKER IMPLANT W MCC
243 - PERMANENT CARDIAC PACEMAKER IMPLANT W CC
244 - PERMANENT CARDIAC PACEMAKER IMPLANT W/O CC/MCC
245 - AICD LEAD & GENERATOR PROCEDURES
246 - PERC CARDIOVASC PROC W DRUG-ELUTING STENT W MCC OR 4+ VESSELS/STENTS
247 - PERC CARDIOVASC PROC W DRUG-ELUTING STENT W/O MCC
248 - PERC CARDIOVASC PROC W NON-DRUG-ELUTING STENT W MCC OR 4+ VES/STENTS
249 - PERC CARDIOVASC PROC W NON-DRUG-ELUTING STENT W/O MCC
250 - PERC CARDIOVASC PROC W/O CORONARY ARTERY STENT OR AMI W MCC
251 - PERC CARDIOVASC PROC W/O CORONARY ARTERY STENT OR AMI W/O MCC
252 - OTHER VASCULAR PROCEDURES W MCC
DRG - TITLE
518 - PERC CARDIO PROC W/O CORONARY ARTERY STENT OR AMI
519 - CERVICAL SPINAL FUSION W CC
520 - CERVICAL SPINAL FUSION W/O CC
525 - OTHER HEART ASSIST SYSTEM IMPLANT
528 - INTRACRANIAL VASCULAR PROC W PDX HEMORRHAGE
529 - VENTRICULAR SHUNT PROCEDURES W CC
530 - VENTRICULAR SHUNT PROCEDURES W/O CC
531 - SPINAL PROCEDURES W CC
532 - SPINAL PROCEDURES W/O CC
533 - EXTRACRANIAL PROCEDURES W CC
534 - EXTRACRANIAL PROCEDURES W/O CC
535 - CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK
536 - CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK
537 - LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W CC
538 - LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W/O CC

0367 Post operative wound dehiscence (PDI 11)
543 - CRANIOTOMY W MAJOR DEVICE IMPLANT OR ACUTE COMPLEX CNS PRINCIPAL DIAGNOSIS
544 - MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY
545 - REVISION OF HIP OR KNEE REPLACEMENT
DRG - TITLE
546 - SPINAL FUSION EXC CERV WITH CURVATURE OF THE SPINE OR MALIG
547 - CORONARY BYPASS W CARDIAC CATH W MAJOR CV DX
548 - CORONARY BYPASS W CARDIAC CATH W/O MAJOR CV DX
549 - CORONARY BYPASS W/O CARDIAC CATH W MAJOR CV DX
550 - CORONARY BYPASS W/O CARDIAC CATH W/O MAJOR CV DX
551 - PERMANENT CARDIAC PACEMAKER IMPL W MAJ CV DX OR AICD LEAD OR GNRTR
552 - OTHER PERMANENT CARDIAC PACEMAKER IMPLANT W/O MAJOR CV DX
553 - OTHER VASCULAR PROCEDURES W CC W MAJOR CV DX
554 - OTHER VASCULAR PROCEDURES W CC W/O MAJOR CV DX
555 - PERCUTANEOUS CARDIOVASCULAR PROC W MAJOR CV DX
556 - PERCUTANEOUS CARDIOVASC PROC W NON-DRUG-ELUTING STENT W/O MAJ CV DX
557 - PERCUTANEOUS CARDIOVASCULAR PROC W DRUG-ELUTING STENT W MAJOR CV DX
558 - PERCUTANEOUS CARDIOVASCULAR PROC W DRUG-ELUTING STENT W/O MAJ CV DX
577 - CAROTID ARTERY STENT PROCEDURE
Surgical Class 1 MS-DRGs
For discharges using MS-DRGs (on or after October 1, 2007)
MS-DRG - TITLE
001 - HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM W MCC
002 - HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM W/O MCC
009 - BONE MARROW TRANSPLANT
020 - INTRACRANIAL VASCULAR PROCEDURES W PDX HEMORRHAGE W MCC
021 - INTRACRANIAL VASCULAR PROCEDURES W PDX HEMORRHAGE W CC
022 - INTRACRANIAL VASCULAR PROCEDURES W PDX HEMORRHAGE W/O CC/MCC
023 - CRANIO W MAJOR DEV IMPL/ACUTE COMPLEX CNS PDX W MCC OR CHEMO IMPLANT
024 - CRANIO W MAJOR DEV IMPL/ACUTE COMPLEX CNS PDX W/O MCC
027 - CRANIOTOMY & ENDOVASCULAR INTRACRANIAL PROCEDURES W/O
MS-DRG - TITLE
CC/MCC
028 - SPINAL PROCEDURES W MCC
029 - SPINAL PROCEDURES W CC OR SPINAL NEUROSTIMULATORS
030 - SPINAL PROCEDURES W/O CC/MCC
031 - VENTRICULAR SHUNT PROCEDURES W MCC
032 - VENTRICULAR SHUNT PROCEDURES W CC
033 - VENTRICULAR SHUNT PROCEDURES W/O CC/MCC
034 - CAROTID ARTERY STENT PROCEDURE W MCC
035 - CAROTID ARTERY STENT PROCEDURE W CC
036 - CAROTID ARTERY STENT PROCEDURE W/O CC/MCC
037 - EXTRACRANIAL PROCEDURES W MCC
038 - EXTRACRANIAL PROCEDURES W CC
039 - EXTRACRANIAL PROCEDURES W/O CC/MCC
AHRQ Quality Indicators Web Site: http://www.qualityindicators.ahrq.gov
Pediatric Quality Indicators Technical Specifications Version 4.2– 2010
PDI #11 Postoperative Wound Dehiscence Page 10
MS-DRG - TITLE
040 - PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W MCC

0367 Post operative wound dehiscence (PDI 11)
041 - PERIPH/CRANIAL NERVE & OTHER NERV SYST PROC W CC OR PERIPH NEUROSTIM
042 - PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W/O CC/MCC
113 - ORBITAL PROCEDURES W CC/MCC
114 - ORBITAL PROCEDURES W/O CC/MCC
115 - EXTRAOCULAR PROCEDURES EXCEPT ORBIT
116 - INTRAOCULAR PROCEDURES W CC/MCC
117 - INTRAOCULAR PROCEDURES W/O CC/MCC
129 - MAJOR HEAD & NECK PROCEDURES W CC/MCC OR MAJOR DEVICE
130 - MAJOR HEAD & NECK PROCEDURES W/O CC/MCC
131 - CRANIAL/FACIAL PROCEDURES W CC/MCC
132 - CRANIAL/FACIAL PROCEDURES W/O CC/MCC
133 - OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W CC/MCC
134 - OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W/O CC/MCC
136 - SINUS & MASTOID PROCEDURES W/O CC/MCC
137 - MOUTH PROCEDURES W CC/MCC
138 - MOUTH PROCEDURES W/O CC/MCC
139 - SALIVARY GLAND PROCEDURES
215 - OTHER HEART ASSIST SYSTEM IMPLANT
216 - CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W CARD CATH W MCC
217 - CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W CARD CATH W CC
218 - CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W CARD CATH W/O CC/MCC
219 - CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W MCC
220 - CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W CC
221 - CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W/O CC/MCC
222 - CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK W MCC
223 - CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK W/O MCC
224 - CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK W MCC
225 - CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK W/O MCC
MS-DRG - TITLE
226 - CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH W MCC
227 - CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH W/O MCC
228 - OTHER CARDIOTHORACIC PROCEDURES W MCC
229 - OTHER CARDIOTHORACIC PROCEDURES W CC
230 - OTHER CARDIOTHORACIC PROCEDURES W/O CC/MCC
231 - CORONARY BYPASS W PTCA W MCC
232 - CORONARY BYPASS W PTCA W/O MCC
233 - CORONARY BYPASS W CARDIAC CATH W MCC
234 - CORONARY BYPASS W CARDIAC CATH W/O MCC
235 - CORONARY BYPASS W/O CARDIAC CATH W MCC
236 - CORONARY BYPASS W/O CARDIAC CATH W/O MCC
237 - MAJOR CARDIOVASC PROCEDURES W MCC OR THORACIC AORTIC ANUERYSM REPAIR
238 - MAJOR CARDIOVASCULAR PROCEDURES W/O MCC
239 - AMPUTATION FOR CIRC SYS DISORDERS EXC UPPER LIMB & TOE W MCC
240 - AMPUTATION FOR CIRC SYS DISORDERS EXC UPPER LIMB & TOE W CC
241 - AMPUTATION FOR CIRC SYS DISORDERS EXC UPPER LIMB & TOE W/O CC/MCC
242 - PERMANENT CARDIAC PACEMAKER IMPLANT W MCC
243 - PERMANENT CARDIAC PACEMAKER IMPLANT W CC
244 - PERMANENT CARDIAC PACEMAKER IMPLANT W/O CC/MCC
245 - AICD LEAD & GENERATOR PROCEDURES
246 - PERC CARDIOVASC PROC W DRUG-ELUTING STENT W MCC OR 4+ VESSELS/STENTS
247 - PERC CARDIOVASC PROC W DRUG-ELUTING STENT W/O MCC
248 - PERC CARDIOVASC PROC W NON-DRUG-ELUTING STENT W MCC OR 4+ VES/STENTS
249 - PERC CARDIOVASC PROC W NON-DRUG-ELUTING STENT W/O MCC
250 - PERC CARDIOVASC PROC W/O CORONARY ARTERY STENT OR AMI W MCC
251 - PERC CARDIOVASC PROC W/O CORONARY ARTERY STENT OR AMI W/O MCC

0367 Post operative wound dehiscence (PDI 11)
252 - OTHER VASCULAR PROCEDURES W MCC
MS-DRG - TITLE
253 - OTHER VASCULAR PROCEDURES W CC
254 - OTHER VASCULAR PROCEDURES W/O CC/MCC
255 - UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS W MCC
256 - UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS W CC
257 - UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS W/O CC/MCC
258 - CARDIAC PACEMAKER DEVICE REPLACEMENT W MCC
259 - CARDIAC PACEMAKER DEVICE REPLACEMENT W/O MCC
260 - CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT W MCC
261 - CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT W CC
262 - CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT W/O CC/MCC
263 - VEIN LIGATION & STRIPPING
264 - OTHER CIRCULATORY SYSTEM O.R. PROCEDURES
352 - INGUINAL & FEMORAL HERNIA PROCEDURES W/O CC/MCC
453 - COMBINED ANTERIOR/POSTERIOR SPINAL FUSION W MCC
454 - COMBINED ANTERIOR/POSTERIOR SPINAL FUSION W CC
455 - COMBINED ANTERIOR/POSTERIOR SPINAL FUSION W/O CC/MCC
456 - SPINAL FUS EXC CERV W SPINAL CURV/MALIG/INFEC OR 9+ FUS W MCC
457 - SPINAL FUS EXC CERV W SPINAL CURV/MALIG/INFEC OR 9+ FUS W CC
458 - SPINAL FUS EXC CERV W SPINAL CURV/MALIG/INFEC OR 9+ FUS W/O CC/MCC
459 - SPINAL FUSION EXCEPT CERVICAL W MCC
460 - SPINAL FUSION EXCEPT CERVICAL W/O MCC
461 - BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY W MCC
462 - BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY W/O MCC
463 - WND DEBRID & SKN GRFT EXC HAND, FOR MUSCULO-CONN TISS DIS W MCC
464 - WND DEBRID & SKN GRFT EXC HAND, FOR MUSCULO-CONN TISS DIS W CC
465 - WND DEBRID & SKN GRFT EXC HAND, FOR MUSCULO-CONN TISS DIS W/O CC/MCC
466 - REVISION OF HIP OR KNEE REPLACEMENT W MCC
467 - REVISION OF HIP OR KNEE REPLACEMENT W CC
468 - REVISION OF HIP OR KNEE
MS-DRG - TITLE
REPLACEMENT W/O CC/MCC
469 - MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY W MCC
470 - MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY W/O MCC
471 - CERVICAL SPINAL FUSION W MCC
472 - CERVICAL SPINAL FUSION W CC
473 - CERVICAL SPINAL FUSION W/O CC/MCC
474 - AMPUTATION FOR MUSCULOSKELETAL SYS & CONN TISSUE DIS W MCC
475 - AMPUTATION FOR MUSCULOSKELETAL SYS & CONN TISSUE DIS W CC
476 - AMPUTATION FOR MUSCULOSKELETAL SYS & CONN TISSUE DIS W/O CC/MCC
477 - BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W MCC
478 - BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W CC
479 - BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W/O CC/MCC
482 - HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT W/O CC/MCC
483 - MAJOR JOINT & LIMB REATTACHMENT PROC OF UPPER EXTREMITY W CC/MCC
484 - MAJOR JOINT & LIMB REATTACHMENT PROC OF UPPER EXTREMITY W/O CC/MCC
485 - KNEE PROCEDURES W PDX OF INFECTION W MCC
486 - KNEE PROCEDURES W PDX OF INFECTION W CC
487 - KNEE PROCEDURES W PDX OF INFECTION W/O CC/MCC
488 - KNEE PROCEDURES W/O PDX OF INFECTION W CC/MCC
489 - KNEE PROCEDURES W/O PDX OF INFECTION W/O CC/MCC
490 - BACK & NECK PROC EXC SPINAL FUSION W CC/MCC OR DISC DEVICE/NEUROSTIM
491 - BACK & NECK PROC EXC SPINAL FUSION W/O CC/MCC
494 - LOWER EXTREM & HUMER PROC EXCEPT HIP,FOOT,FEMUR W/O CC/MCC

0367 Post operative wound dehiscence (PDI 11)
495 - LOCAL EXCISION & REMOVAL INT FIX DEVICES EXC HIP & FEMUR W MCC
496 - LOCAL EXCISION & REMOVAL INT FIX DEVICES EXC HIP & FEMUR W CC
497 - LOCAL EXCISION & REMOVAL INT FIX DEVICES EXC HIP & FEMUR W/O CC/MCC
498 - LOCAL EXCISION & REMOVAL INT FIX DEVICES OF HIP & FEMUR W CC/MCC
499 - LOCAL EXCISION & REMOVAL INT FIX DEVICES OF HIP & FEMUR W/O CC/MCC
500 - SOFT TISSUE PROCEDURES W MCC
AHRQ Quality Indicators Web Site: http://www.qualityindicators.ahrq.gov
Pediatric Quality Indicators Technical Specifications Version 4.2– 2010
PDI #11 Postoperative Wound Dehiscence Page 12
MS-DRG - TITLE
501 - SOFT TISSUE PROCEDURES W CC
502 - SOFT TISSUE PROCEDURES W/O CC/MCC
503 - FOOT PROCEDURES W MCC
504 - FOOT PROCEDURES W CC
505 - FOOT PROCEDURES W/O CC/MCC
506 - MAJOR THUMB OR JOINT PROCEDURES
507 - MAJOR SHOULDER OR ELBOW JOINT PROCEDURES W CC/MCC
508 - MAJOR SHOULDER OR ELBOW JOINT PROCEDURES W/O CC/MCC
509 - ARTHROSCOPY
510 - SHOULDER,ELBOW OR FOREARM PROC,EXC MAJOR JOINT PROC W MCC
511 - SHOULDER,ELBOW OR FOREARM PROC,EXC MAJOR JOINT PROC W CC
512 - SHOULDER,ELBOW OR FOREARM PROC,EXC MAJOR JOINT PROC W/O CC/MCC
513 - HAND OR WRIST PROC, EXCEPT MAJOR THUMB OR JOINT PROC W CC/MCC
514 - HAND OR WRIST PROC, EXCEPT MAJOR THUMB OR JOINT PROC W/O CC/MCC
515 - OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W MCC
516 - OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W CC
517 - OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W/O CC/MCC
582 - MASTECTOMY FOR MALIGNANCY W CC/MCC
583 - MASTECTOMY FOR MALIGNANCY W/O CC/MCC
584 - BREAST BIOPSY, LOCAL EXCISION & OTHER BREAST PROCEDURES W CC/MCC
585 - BREAST BIOPSY, LOCAL EXCISION & OTHER BREAST PROCEDURES W/O CC/MCC
614 - ADRENAL & PITUITARY PROCEDURES
MS-DRG - TITLE
W CC/MCC
615 - ADRENAL & PITUITARY PROCEDURES W/O CC/MCC
616 - AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DIS W MCC
617 - AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DIS W CC
618 - AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DIS W/O CC/MCC
622 - SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DIS W MCC
623 - SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DIS W CC
624 - SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DIS W/O CC/MCC
625 - THYROID, PARATHYROID & THYROGLOSSAL PROCEDURES W MCC
626 - THYROID, PARATHYROID & THYROGLOSSAL PROCEDURES W CC
627 - THYROID, PARATHYROID & THYROGLOSSAL PROCEDURES W/O CC/MCC
628 - OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W MCC
629 - OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W CC
630 - OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W/O CC/MCC
711 - TESTES PROCEDURES W CC/MCC
712 - TESTES PROCEDURES W/O CC/MCC
800 - SPLENECTOMY W CC
801 - SPLENECTOMY W/O CC/MCC
802 - OTHER O.R. PROC OF THE BLOOD & BLOOD FORMING ORGANS W MCC
803 - OTHER O.R. PROC OF THE BLOOD & BLOOD FORMING ORGANS W CC
804 - OTHER O.R. PROC OF THE BLOOD & BLOOD FORMING ORGANS W/O CC/MCC
Surgical Class 2 DRGs

0367 Post operative wound dehiscence (PDI 11)
For discharges using DRGs (before October 1, 2007)
DRG - TITLE
075 - MAJOR CHEST PROCEDURES
076 - OTHER RESP SYSTEM O.R. PROCEDURES W CC
077 - OTHER RESP SYSTEM O.R. PROCEDURES W/O CC
146 - RECTAL RESECTION W CC
147 - RECTAL RESECTION W/O CC
149 - MAJOR SMALL & LARGE BOWEL PROCEDURES W/O CC
150 - PERITONEAL ADHESIOLYSIS W CC
151 - PERITONEAL ADHESIOLYSIS W/O CC
DRG - TITLE
152 - MINOR SMALL & LARGE BOWEL PROCEDURES W CC
153 - MINOR SMALL & LARGE BOWEL PROCEDURES W/O CC
156 - STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE 0-17
157 - ANAL & STOMAL PROCEDURES W CC
158 - ANAL & STOMAL PROCEDURES W/O CC
166 - APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W CC
DRG - TITLE
167 - APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W/O CC
170 - OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W CC
171 - OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W/O CC
191 - PANCREAS, LIVER & SHUNT PROCEDURES W CC
192 - PANCREAS, LIVER & SHUNT PROCEDURES W/O CC
193 - BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W CC
194 - BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W/O CC
195 - CHOLECYSTECTOMY W C.D.E. W CC
196 - CHOLECYSTECTOMY W C.D.E. W/O CC
197 - CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W CC
198 - CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W/O CC
199 - HEPATOBILIARY DIAGNOSTIC PROCEDURE FOR MALIGNANCY
200 - HEPATOBILIARY DIAGNOSTIC PROCEDURE FOR NON-MALIGNANCY
201 - OTHER HEPATOBILIARY OR PANCREAS O.R. PROCEDURES
265 - SKIN GRAFT &/OR DEBRID EXCEPT FOR SKIN ULCER OR CELLULITIS W CC
266 - SKIN GRAFT &/OR DEBRID EXCEPT FOR SKIN ULCER OR CELLULITIS W/O CC
267 - PERIANAL & PILONIDAL PROCEDURES
268 - SKIN, SUBCUTANEOUS TISSUE & BREAST PLASTIC PROCEDURES
269 - OTHER SKIN, SUBCUT TISS & BREAST PROC W CC
270 - OTHER SKIN, SUBCUT TISS & BREAST PROC W/O CC
288 - O.R. PROCEDURES FOR OBESITY
302 - KIDNEY TRANSPLANT
303 - KIDNEY AND URETER PROCEDURES FOR NEOPLASM
304 - KIDNEY AND URETER PROCEDURES FOR NON-NEOPLASM WITHOUT CC
305 - KIDNEY AND URETER PROCEDURES FOR NON-NEOPLASM WITHOUT CC
306 - PROSTATECTOMY W CC
307 - PROSTATECTOMY W/O CC
308 - MINOR BLADDER PROCEDURES W CC
309 - MINOR BLADDER PROCEDURES W/O CC
310 - TRANSURETHRAL PROCEDURES W CC
311 - TRANSURETHRAL PROCEDURES W/O CC
314 - URETHRAL PROCEDURES, AGE 0-17
315 - OTHER KIDNEY & URINARY TRACT O.R. PROCEDURES
334 - MAJOR MALE PELVIC PROCEDURES W CC
335 - MAJOR MALE PELVIC PROCEDURES W/O CC
336 - TRANSURETHRAL PROSTATECTOMY W CC
DRG - TITLE

0367 Post operative wound dehiscence (PDI 11)
337 - TRANSURETHRAL PROSTATECTOMY W/O CC
341 - PENIS PROCEDURES
343 - CIRCUMCISION AGE 0-17
344 - OTHER MALE REPRODUCTIVE SYSTEM O.R. PROCEDURES FOR MALIGNANCY
345 - OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXCEPT FOR MALIGNANCY
353 - PELVIC EVISCERATION, RADICAL HYSTERECTOMY & RADICAL VULVECTOMY
354 - UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W CC
355 - UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W/O CC
356 - FEMALE REPRODUCTIVE SYSTEM RECONSTRUCTIVE PROCEDURES
357 - UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY
358 - UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W CC
359 - UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W/O CC
360 - VAGINA, CERVIX & VULVA PROCEDURES
361 - LAPAROSCOPY & INCISIONAL TUBAL INTERRUPTION
362 - ENDOSCOPIC TUBAL INTERRUPTION
363 - D&C, CONIZATION & RADIO-IMPLANT, FOR MALIGNANCY
364 - D&C, CONIZATION EXCEPT FOR MALIGNANCY
365 - OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES
370 - CESAREAN SECTION W CC
371 - CESAREAN SECTION W/O CC
372 - VAGINAL DELIVERY W COMPLICATING DIAGNOSES
373 - VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES
374 - VAGINAL DELIVERY W STERILIZATION &/OR D&C
375 - VAGINAL DELIVERY W O.R. PROC EXCEPT STERIL &/OR D&C
377 - POSTPARTUM & POST ABORTION DIAGNOSES W O.R. PROCEDURE
381 - ABORTION W D&C, ASPIRATION CURETTAGE OR HYSTEROTOMY
468 - EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS
476 - PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS
477 - NON-EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS
480 - LIVER TRANSPLANT AND/OR INTESTINAL TRANSPLANT
482 - TRACHEOSTOMY FOR FACE,MOUTH & NECK DIAGNOSES
493 - LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W CC
AHRQ Quality Indicators Web Site: http://www.qualityindicators.ahrq.gov
Pediatric Quality Indicators Technical Specifications Version 4.2– 2010
PDI #11 Postoperative Wound Dehiscence Page 14
DRG - TITLE
494 - LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W/O CC
495 - LUNG TRANSPLANT
512 - SIMULTANEOUS PANCREAS/KIDNEY TRANSPLANT
513 - PANCREAS TRANSPLANT
541 - ECMO OR TRACH W MV 96+HRS OR PDX EXC FACE, MOUTH & NECK W MAJ O.R.
DRG - TITLE
542 - TRACH W MV 96+HRS OR PDX EXC FACE, MOUTH & NECK W/O MAJ O.R.
559 - ACUTE ISCHEMIC STROKE WITH USE OF THROMBOLYTIC AGENT
569 - MAJOR SMALL & LARGE BOWEL PROCEDURES W CC W MAJOR GI DX
570 - MAJOR SMALL & LARGE BOWEL PROCEDURES W CC W/O MAJOR GI DX
573 - MAJOR BLADDER PROCEDURES
Surgical Class 2 MS-DRGs
For discharges using MS-DRGs (on or after October 1, 2007)
MS-DRG - TITLE
003 - ECMO OR TRACH W MV 96+ HRS OR PDX EXC FACE, MOUTH & NECK W MAJ O.R.
004 - TRACH W MV 96+ HRS OR PDX EXC FACE, MOUTH & NECK W/O MAJ O.R.
005 - LIVER TRANSPLANT W MCC OR INTESTINAL TRANSPLANT
006 - LIVER TRANSPLANT W/O MCC
007 - LUNG TRANSPLANT

0367 Post operative wound dehiscence (PDI 11)
008 - SIMULTANEOUS PANCREAS/KIDNEY TRANSPLANT
010 - PANCREAS TRANSPLANT
011 - TRACHEOSTOMY FOR FACE,MOUTH & NECK DIAGNOSES W MCC
012 - TRACHEOSTOMY FOR FACE,MOUTH & NECK DIAGNOSES W CC
013 - TRACHEOSTOMY FOR FACE,MOUTH & NECK DIAGNOSES W/O CC/MCC
061 - ACUTE ISCHEMIC STROKE W USE OF THROMBOLYTIC AGENT W MCC
062 - ACUTE ISCHEMIC STROKE W USE OF THROMBOLYTIC AGENT W CC
063 - ACUTE ISCHEMIC STROKE W USE OF THROMBOLYTIC AGENT W/O CC/MCC
163 - MAJOR CHEST PROCEDURES W MCC
164 - MAJOR CHEST PROCEDURES W CC
165 - MAJOR CHEST PROCEDURES W/O CC/MCC
166 - OTHER RESP SYSTEM O.R. PROCEDURES W MCC
167 - OTHER RESP SYSTEM O.R. PROCEDURES W CC
168 - OTHER RESP SYSTEM O.R. PROCEDURES W/O CC/MCC
327 - STOMACH, ESOPHAGEAL & DUODENAL PROC W CC
329 - MAJOR SMALL & LARGE BOWEL PROCEDURES W MCC
330 - MAJOR SMALL & LARGE BOWEL PROCEDURES W CC
331 - MAJOR SMALL & LARGE BOWEL PROCEDURES W/O CC/MCC
332 - RECTAL RESECTION W MCC
333 - RECTAL RESECTION W CC
334 - RECTAL RESECTION W/O CC/MCC
MS-DRG - TITLE
335 - PERITONEAL ADHESIOLYSIS W MCC
336
PERITONEAL ADHESIOLYSIS W CC
337 - PERITONEAL ADHESIOLYSIS W/O CC/MCC
341 - APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W MCC
342 - APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W CC
343 - APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W/O CC/MCC
344 - MINOR SMALL & LARGE BOWEL PROCEDURES W MCC
345 - MINOR SMALL & LARGE BOWEL PROCEDURES W CC
346 - MINOR SMALL & LARGE BOWEL PROCEDURES W/O CC/MCC
347 - ANAL & STOMAL PROCEDURES W MCC
348 - ANAL & STOMAL PROCEDURES W CC
349 - ANAL & STOMAL PROCEDURES W/O CC/MCC
356 - OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W MCC
357 - OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W CC
358 - OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W/O CC/MCC
405 - PANCREAS, LIVER & SHUNT PROCEDURES W MCC
406 - PANCREAS, LIVER & SHUNT PROCEDURES W CC
407 - PANCREAS, LIVER & SHUNT PROCEDURES W/O CC/MCC
408 - BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W MCC
409 - BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W CC
410 - BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W/O CC/MCC
411 - CHOLECYSTECTOMY W C.D.E. W MCC
412 - CHOLECYSTECTOMY W C.D.E. W CC
413 - CHOLECYSTECTOMY W C.D.E. W/O CC/MCC
414 - CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W MCC
MS-DRG - TITLE
415 - CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W CC
416 - CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W/O CC/MCC
417 - LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W MCC
418 - LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W CC
419 - LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W/O CC/MCC
420 - HEPATOBILIARY DIAGNOSTIC PROCEDURES W MCC

0367 Post operative wound dehiscence (PDI 11)
421 - HEPATOBILIARY DIAGNOSTIC PROCEDURES W CC
422 - HEPATOBILIARY DIAGNOSTIC PROCEDURES W/O CC/MCC
423 - OTHER HEPATOBILIARY OR PANCREAS O.R. PROCEDURES W MCC
424 - OTHER HEPATOBILIARY OR PANCREAS O.R. PROCEDURES W CC
425 - OTHER HEPATOBILIARY OR PANCREAS O.R. PROCEDURES W/O CC/MCC
576 - SKIN GRAFT &/OR DEBRID EXC FOR SKIN ULCER OR CELLULITIS W MCC
577 - SKIN GRAFT &/OR DEBRID EXC FOR SKIN ULCER OR CELLULITIS W CC
578 - SKIN GRAFT &/OR DEBRID EXC FOR SKIN ULCER OR CELLULITIS W/O CC/MCC
579 - OTHER SKIN, SUBCUT TISS & BREAST PROC W MCC
580 - OTHER SKIN, SUBCUT TISS & BREAST PROC W CC
581 - OTHER SKIN, SUBCUT TISS & BREAST PROC W/O CC/MCC
619 - O.R. PROCEDURES FOR OBESITY W MCC
620 - O.R. PROCEDURES FOR OBESITY W CC
621 - O.R. PROCEDURES FOR OBESITY W/O CC/MCC
652 - KIDNEY TRANSPLANT
653 - MAJOR BLADDER PROCEDURES W MCC
654 - MAJOR BLADDER PROCEDURES W CC
655 - MAJOR BLADDER PROCEDURES W/O CC/MCC
656 - KIDNEY & URETER PROCEDURES FOR NEOPLASM W MCC
657 - KIDNEY & URETER PROCEDURES FORNEOPLASM W CC
658 - KIDNEY & URETER PROCEDURES FOR NEOPLASM W/O CC/MCC
659 - KIDNEY & URETER PROCEDURES FOR NON-NEOPLASM W MCC
660 - KIDNEY & URETER PROCEDURES FOR NON-NEOPLASM W CC
661 - KIDNEY & URETER PROCEDURES FOR NON-NEOPLASM W/O CC/MCC
662 - MINOR BLADDER PROCEDURES W MCC
663 - MINOR BLADDER PROCEDURES W CC
MS-DRG - TITLE
664 - MINOR BLADDER PROCEDURES W/O CC/MCC
665 - PROSTATECTOMY W MCC
666 - PROSTATECTOMY W CC
667 - PROSTATECTOMY W/O CC/MCC
668 - TRANSURETHRAL PROCEDURES W MCC
669 - TRANSURETHRAL PROCEDURES W CC
670 - TRANSURETHRAL PROCEDURES W/O CC/MCC
672 - URETHRAL PROCEDURES W/O CC/MCC
673 - OTHER KIDNEY & URINARY TRACT PROCEDURES W MCC
674 - OTHER KIDNEY & URINARY TRACT PROCEDURES W CC
675 - OTHER KIDNEY & URINARY TRACT PROCEDURES W/O CC/MCC
707 - MAJOR MALE PELVIC PROCEDURES W CC/MCC
708 - MAJOR MALE PELVIC PROCEDURES W/O CC/MCC
709 - PENIS PROCEDURES W CC/MCC
710 - PENIS PROCEDURES W/O CC/MCC
713 - TRANSURETHRAL PROSTATECTOMY W CC/MCC
714 - TRANSURETHRAL PROSTATECTOMY W/O CC/MCC
715 - OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC FOR MALIGNANCY W CC/MCC
716 - OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC FOR MALIGNANCY W/O CC/MCC
717 - OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXC MALIGNANCY W CC/MCC
718 - OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXC MALIGNANCY W/O CC/MCC
734 - PELVIC EVISCERATION, RAD HYSTERECTOMY & RAD VULVECTOMY W CC/MCC
735 - PELVIC EVISCERATION, RAD HYSTERECTOMY & RAD VULVECTOMY W/O CC/MCC
736 - UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY W MCC
737 - UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY W CC
738 - UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY W/O CC/MCC
739 - UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W MCC
740 - UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W CC

0367 Post operative wound dehiscence (PDI 11)
741 - UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W/O CC/MCC
AHRQ Quality Indicators Web Site: http://www.qualityindicators.ahrq.gov
Pediatric Quality Indicators Technical Specifications Version 4.2– 2010
PDI #11 Postoperative Wound Dehiscence Page 16
MS-DRG - TITLE
742 - UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W CC/MCC
743 - UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W/O CC/MCC
744 - D&C, CONIZATION, LAPAROSCOPY & TUBAL INTERRUPTION W CC/MCC
745 - D&C, CONIZATION, LAPAROSCOPY & TUBAL INTERRUPTION W/O CC/MCC
746 - VAGINA, CERVIX & VULVA PROCEDURES W CC/MCC
747 - VAGINA, CERVIX & VULVA PROCEDURES W/O CC/MCC
748 - FEMALE REPRODUCTIVE SYSTEM RECONSTRUCTIVE PROCEDURES
749 - OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES W CC/MCC
750 - OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES W/O CC/MCC
765 - CESAREAN SECTION W CC/MCC
766 - CESAREAN SECTION W/O CC/MCC
767 - VAGINAL DELIVERY W STERILIZATION &/OR D&C
768 - VAGINAL DELIVERY W O.R. PROC EXCEPT STERIL &/OR D&C
769 - POSTPARTUM & POST ABORTION DIAGNOSES W O.R. PROCEDURE
770 - ABORTION W D&C, ASPIRATION CURETTAGE OR HYSTEROTOMY
774 - VAGINAL DELIVERY W COMPLICATING DIAGNOSES
MS-DRG - TITLE
775 - VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES
981 - EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W MCC
982 - EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W CC
983 - EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W/O CC/MCC
984 - PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W MCC
985 PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W CC
986 PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W/O CC/MCC
987 - NON-EXTENSIVE O.R. PROC UNRELATED TO PRINCIPAL DIAGNOSIS W MCC
988 - NON-EXTENSIVE O.R. PROC UNRELATED TO PRINCIPAL DIAGNOSIS W CC
989 - NON-EXTENSIVE O.R. PROC UNRELATED TO PRINCIPAL DIAGNOSIS W/O CC/MCC
Surgical Class 3 DRGs
For discharges using DRGs (before October 1, 2007)
DRG - TITLE
263 - SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W CC
264 - SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W/O CC
439 - SKIN GRAFTS FOR INJURIES
440 - WOUND DEBRIDEMENTS FOR INJURIES
441 - HAND PROCEDURES FOR INJURIES
442 - OTHER O.R. PROCEDURES FOR INJURIES W CC
443 - OTHER O.R. PROCEDURES FOR INJURIES W/O CC
484 - CRANIOTOMY FOR MULTIPLE SIGNIFICANT TRAUMA
DRG - TITLE
485 - LIMB REATTACHMENT, HIP AND FEMUR PROC FOR MULTIPLE SIGNIFICANT TRAUMA
486 - OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA
504 - EXTEN. BURNS OR FULL THICKNESS BURN W/MV 96+HRS W/SKIN GFT
506 - FULL THICKNESS BURN W SKIN GRAFT OR INHAL INJ W CC OR SIG TRAUMA
507 - FULL THICKNESS BURN W SKIN GRFT OR INHAL INJ W/O CC OR SIG TRAUMA
Surgical Class 3 MS-DRGs
For discharges using MS-DRGs (on or after October 1, 2007)
MS-DRG - TITLE
573 - SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W MCC

0367 Post operative wound dehiscence (PDI 11)
MS-DRG - TITLE 574 - SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W CC Level of Analysis: Facility/ Agency Type of Measure: Outcome Data Source: Electronic administrative data/ claims Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850
Steering Committee Recommendation for Endorsement: No. Rationale: Did not pass threshold criterion of Importance to Measure and Report; thus, not assessed against remaining criteria. Submission of Request for Reconsideration: The request for reconsideration was reviewed by the Consensus Standards Approval Committee (CSAC) co-chairs and it was determined to uphold the Committee's decision to not recommend the measure. The CSAC co-chairs agreed that while tracking the rate of wound dehiscence would be important for quality improvement, it would not be useful for accountability due to concerns related to the low incidence. This type of potentially preventable complication may be better suited as a serious reportable event or other methodology and the co-chairs strongly encouraged that individuals consider this type of development in the near future.
Steering Committee Follow-Up: The measure developer requested that the Steering Committee reconsider its recommendation related to endorsement of measures 0367 and 0368. The Steering Committee re-examined the evidence cited and the clarification offered by the measure developer. Members continued to register concern about: 1) the low rate of wound dehiscence, which has remained stable over a long period; 2) evidence (Hannan, et al. *A methodology for targeting hospital cases for quality of care record reviews*, 1989.) that points to dehiscence for which the fundamental problem is infection; 3) the lack of a standard of care for wound dehiscence prevention or contributing risk factors; and 4) that the rate cannot be reduced due to lack of non-patient specific factors that can be influenced. The overriding concern was that the measure does not provide clinically meaningful, actionable data.
1. Importance to Measure and Report: Y-4; N-17 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The Committee noted that only about 25 percent of wound dehiscence has been demonstrated to have modifiable factors. Twenty-five percent of wound dehiscence is not preventable and the cause in another 41 percent is uncertain; thus, the rationale for the measure is not supported by the literature. Also, members were concerned that the evidence for the measure appeared to be based on an analysis of patients with a secondary diagnosis code for "other than wound disruptions". The Committee noted that the disparity data could be improved. Finally, they stated that the evidence does not indicate that wound dehiscence is a problem specifically in children and only a small number of patients experience wound dehiscence.
2. Scientific Acceptability of Measure Properties: *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale:
3. Usability: *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale:
4. Feasibility: *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale:
Public and Member Comment Commenters believed that this measure would provide an impact on the quality of care. The Committee felt that while the occurrence of wound dehiscence is concerning; however, the measures, as constructed, did not pass the criterion of importance and does not provide actionable data. This is based on the low rate of dehiscence that has remained stable over a period of time during which the measures have been in use; cited evidence that the underlying problem is infection; lack of a standard of care for prevention; and inability to reduce the rate due to lack of non-patient specific factors that can be influenced. The Committee did not change its recommendation. The request for reconsideration submitted by the measure developer was completed by the CSAC co-chairs.

0368 Post operative wound dehiscence (PSI 14)
For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of abdominopelvic surgery cases with reclosure of postoperative disruption of abdominal wall.

0368 Post operative wound dehiscence (PSI 14)

Numerator Statement: Discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD-9-CM procuedure code for reclosure of postoperative disruption of abdominal wall procedure.

Denominator Statement: All abdominopelvic surgical discharges age 18 and older.

Exclusions: Exclude cases:

• where a procedure for reclosure of postoperative disruption of abdominal wall occurs before or on the same day as the first abdominopelvic surgery procedure

Note: If day of procedure is not available in the input data file, the rate may be slightly lower than if the information was available

• where length of stay is less than 2 days

• with any diagnosis or procedure code for immunocompromised state

• MDC 14 (pregnancy, childbirth, and puerperium).

Adjustment/Stratification: risk adjustment method widely or commercially available The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, birth weight (500g groups), age in days (29-60, 61-90, 91+), age in years (in 5-year age groups), modified CMS DRG and AHRQ CCS comorbidities. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007 (updated annually), a database consisting of 43 states and approximately 6 million pediatric discharges. 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, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate.

Required data elements: CMS Diagnosis Related Group (DRG); CMS Major Diagnostic Category (MDC); patient gender; age in years at admission; International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) principal and secondary diagnosis codes/The user has the option to stratify by gender, birth weight, age in days, age in years (5-year age groups), race / ethnicity, primary payer, and custom stratifiers.

Level of Analysis: Facility/ Agency

Type of Measure: Outcome

Data Source: Electronic administrative data/ claims

Measure Steward: Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850

Steering Committee Recommendation for Endorsement: No.

Rationale: Did not pass threshold criterion of Importance to Measure and Report; thus, not assessed against remaining criteria.

Submission of Request for Reconsideration: The request for reconsideration was reviewed by the Consensus Standards Approval Committee (CSAC) co-chairs and it was determined to uphold the Committee's decision to not recommend the measure. The CSAC co-chairs agreed that while tracking the rate of wound dehiscence would be important for quality improvement, it would not be useful for accountability due to concerns related to the low incidence. This type of potentially preventable complication may be better suited as a serious reportable event or other methodology and the co-chairs strongly encouraged that individuals consider this type of development in the near future.

Steering Committee Follow-Up:

The measure developer requested that the Steering Committee reconsider its recommendation related to endorsement of measures 0367 and 0368. The Steering Committee re-examined the evidence cited and the clarification offered by the measure developer. Members continued to register concern about: 1) the low rate of wound dehiscence, which has remained stable over a long period; 2) evidence (Hannan, et al. *A methodology for targeting hospital cases for quality of care record reviews*, 1989.) that points to dehiscence for which the fundamental problem is infection; 3) the lack of a standard of care for wound dehiscence prevention or contributing risk factors; and 4) that the rate cannot be reduced due to lack of non-patient specific factors that can be influenced. The overriding concern was that the measure does not provide clinically meaningful, actionable data.

1. Importance to Measure and Report: Y-3; N-18

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: The Committee noted that only about 25 percent of wound dehiscence has been demonstrated to have modifiable factors. Twenty-five percent of wound dehiscence is not preventable and the cause in another 41 percent is uncertain thus the rationale for the measure is not supported by the literature. Also, members were concerned that evidence for measure appeared to be based on an analysis of patients with a secondary diagnosis code for other than wound disruptions. The Committee noted that the disparity data could be improved. Finally, they stated only a very small number of patients experience wound dehiscence. It was noted that as in the case of many safety measures, the volume is often quite small and that the utility of the patient safety indicators is that they often serve as surrogate measures or trigger tools for which data is readily availability. In the case of these measures, comment was made that there is not a significant association with them as marked due to their infrequency of occurrence. Any additional discussion of the measure should be accompanied by data regarding its actual impact.

2. Scientific Acceptability of Measure Properties:

0368 Post operative wound dehiscence (PSI 14)
(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities) Rationale:
3. Usability: *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale:
4. Feasibility: *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale:
Public and Member Comment Commenters believed that this measure would provide an impact on the quality of care. The Committee felt that while the occurrence of wound dehiscence is concerning; however, the measures, as constructed, did not pass the criterion of importance and does not provide actionable data. This is based on the low rate of dehiscence that has remained stable over a period of time during which the measures have been in use; cited evidence that the underlying problem is infection; lack of a standard of care for prevention; and inability to reduce the rate due to lack of non-patient specific factors that can be influenced. The Committee did not change its recommendation. The request for reconsideration submitted by the measure developer was completed by the CSAC co-chairs.

VENOUS THROMOEMBOLISM (VTE)

Endorsed Measure:

0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time
For More Information: Detailed Measure Specifications; Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time Numerator Statement: Surgery patients who received appropriate VTE prophylaxis within 24 hours prior to Surgical Incision Time to 24 hours after Surgery End Time Appropriate prophylaxis according to Surgery Type: Intracranial Neurosurgery Any of the following: • Intermittent pneumatic compression devices (IPC) with or without graduated compression stockings (GCS) • Low-dose unfractionated heparin (LDUH) Low molecular weight heparin (LMWH)2 • LDUH or LMWH2 combined with IPC or GCS General Surgery Any of the following: • Low-dose unfractionated heparin (LDUH) • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor (Fondaparinux) • LDUH or LMWH or Factor Xa Inhibitor (fondaparinux) combined with IPC or GCS General Surgery with a reason for not administering pharmacological prophylaxis Any of the following: • Graduated Compression stockings (GCS) • Intermittent pneumatic compression devices (IPC) Gynecologic Surgery Any of the following: • Low-dose unfractionated heparin (LDUH) • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor (fondaparinux) • Intermittent pneumatic compression devices (IPC)

0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time

• LDUH or LMWH or Factor Xa Inhibitor (fondaparinux) combined with IPC or GCS
Urologic Surgery
Any of the following:
• Low-dose unfractionated heparin (LDUH)
• Low molecular weight heparin (LMWH)
• Factor Xa Inhibitor (fondaparinux)
• Intermittent pneumatic compression devices (IPC)
• Graduated compression stockings (GCS)
• LDUH or LMWH or Factor Xa Inhibitor (fondaparinux) combined with IPC or GCS
Elective Total Hip Replacement
Any of the following started within 24 hours of surgery:
• Low molecular weight heparin (LMWH)
• Factor Xa Inhibitor (Fondaparinux)
• Warfarin
Elective Total Knee Replacement
Any of the following:
• Low molecular weight heparin (LMWH)
• Factor Xa Inhibitor (Fondaparinux)
• Warfarin
• Intermittent pneumatic compression devices (IPC)
• Venous foot pump (VFP)
Hip Fracture Surgery
Any of the following:
• Low-dose unfractionated heparin (LDUH)
• Low molecular weight heparin (LMWH)
• Factor Xa Inhibitor (Fondaparinux)
• Warfarin
Elective Total Hip Replacement with a reason for not administering pharmacological prophylaxis
Any of the following:
• Intermittent pneumatic compression devices (IPC)
• Venous foot pump (VFP)
Hip Fracture Surgery with a reason for not administering pharmacological prophylaxis
Any of the following:
• Graduated Compression Stockings (GCS)
• Intermittent pneumatic compression devices (IPC)
• Venous foot pump (VFP)
Denominator Statement: All selected surgery patients.
Exclusions: Data elements: clinical trial, laparoscope, perioperative death, preadmission warfarin, reason for not administering VTE prophylaxis
Adjustment/Stratification: no risk adjustment necessary/No stratification except by surgery type and those are Intracranial Neurosurgery Appendix A,Table 5.17
General Surgery Appendix A, Table 5.19
Gynecologic Surgery Appendix A, Table 5.20
Urologic Surgery Appendix A,Table 5.21
Elective Total Hip Replacement Appendix A,Table 5.22
Elective Total Knee Replacement Appendix A,Table 5.23
Hip Fracture Surgery Appendix A,Table 5.24
Level of Analysis: Facility/Agency; Program: QIO; can be measured at all levels
Type of Measure: Process
Data Source: Electronic clinical data; electronic health/medical record; paper medical record/flow-sheet. Vendor tools or CART. CART is available for download free at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093
Measure Steward: Centers for Medicare & Medicaid Services | 7500 Security Boulevard | Baltimore | Maryland | 21244

Steering Committee Recommendation for Endorsement: Y-17; N-2; A-1

0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time

Rationale: The large number of patients at risk and rate of death demonstrates the importance of continuing to strive for 100 percent compliance since VTE is one of the most common preventable causes of hospital death with about 1/3 of such occurrences being fatal. In discussion of potential harmonization of related measure 0371, the Committee agreed that the differences in populations, and guidelines for prophylaxis for those populations, warrant continuation of both measures as specified at present; however, members requested that the population of patients targeted by the measures be further reviewed for harmonization by the next maintenance review of the measures.

If applicable, Conditions/Questions for Developer:

1. 2a Measure Specifications: The length-of-stay indicated in the form is inconsistent. Length-of-stay is listed as three calendar days in some areas of the form and 24 hours in other areas.
2. 2a.3 Numerator Details: Provide a more detailed definition of what constitutes 'appropriate VTE prophylaxis' and attempt to reconcile ACCP guidelines with other evidence based guidelines for relevant populations (e.g. AAOS for orthopedic procedures).
3. 2a.10 Denominator Exclusion Details: Provide a more detailed definition of the laparoscopic exclusion or remove laparoscopic procedures from the denominator exclusions.

Developer Response:

1. The numerator time window (section 2a.2) is 24 hours prior to incision to 24 hours after surgery end time. Included in the measure submission is an exclusion statement "Patients with hospital length of stay less than or equal to 3 calendar days" that was not consistent with the exclusion statements in the paired measure, #217. All of the information about length of stay in #218 is correct. Measure #217 contains an incorrect statement about length of stay, but that measure is not being considered for re-endorsement, so it will not be corrected.
2. The submission form requests a link to the specifications and specifically recommends against the use of attachments. The Measure Information Form on the QualityNet website provides a very detailed table listing the procedure type and the appropriate VTE prophylaxis. That table is below. The recommendations in the measure are based on Level I evidence, per the ACCP Guidelines. The AAOS has this recommendation for prevention of symptomatic PE in patients undergoing hip/knee arthroplasty, with a Level III rating. *The use of aspirin as a monotherapy is the only recommendation that does not agree with the ACCP Guidelines.* The recommendation from AAOS is listed below:

   Recommendation 3.3

   Chemoprophylaxis of patients undergoing hip or knee replacement

   Recommendation 3.3.1

   Patients at standard risk of both PE and major bleeding should be considered for one of the chemoprophylactic agents evaluated in this guideline, including—in alphabetical order: Aspirin, low molecular-weight heparin (LMWH), synthetic pentasaccharides, and warfarin. (Level III, Grade B [choice of prophylactic agent], Grade C [dosage and timing])

   Note: The grade of recommendation was reduced from B to C for dosage and timing because of the lack of consistent evidence in the literature defining a clearly superior regime.
3. The exclusion for laparoscopic procedures is being removed for discharges beginning 1/1/2012.

Steering Committee Follow-up:

The Steering Committee agreed that the response from the developer was adequate. The Steering Committee expressed that in the future they would like to see ACCP and AAOS work together to create appropriate and standardized guidelines.

1. Importance to Measure and Report: Y-20; N-0

(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)

Rationale: Performance in quarter 1, 2010 was 92.5%, up from 69.79% in 2005 with significant remaining opportunity for improvement. Studies have indicated that the number one cause of 30-day mortality in cancer patients after surgery is related to venous thromboembolism.

2. Scientific Acceptability of Measure Properties: C-6; P-13; M-1; N-0

(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)

Rationale: The numerator is not harmonized with other evidence-based guidelines. Laparoscopic surgery is not well defined and should be removed from the list of exclusions as they are high risk patients.

3. Usability: C-9; P-11; M-0; N-0

(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)

Rationale: The data sources include electronic clinical data, the electronic medical record where in use and paper medical record abstraction. It is in use in U.S. hospitals receiving Medicare reimbursement nationally.

4. Feasibility: C-13; P-7; M-0; N-0

0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time
(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented) Rationale: The measure can be easily implemented.
Public and Member Comments Comments included: • identify age group in the measure description and denominator statements; • change "Factor Xa Inhibitor (Fondaparinux)" to "Factor Xa Inhibitor with VTE prophylaxis indication" to create more flexibility in the measure; • clarify "appropriate venous thromboembolism prophylaxis"; and • include otolaryngology-head and neck surgery procedures in measure specifications. The Steering Committee supported the change proposed by the measure developer with respect to integrating language into the specification to allow abstractors to select a pharmacologic agent that may be newly approved for a clinical indication; accepts the rationale for not including prophylaxis for head and neck surgery at this time; and encouraged the developer to make the requested change to the measure descriptions and denominator.

Measure not Recommended for Endorsement:

0217 Surgery patients with recommended venous thromboembolism (VTE) prophylaxis ordered
For More Information: Complete Measure Submission; Meeting/Call Proceedings
Description: Percentage of surgery patients with recommended venous thromboembolism (VTE) prophylaxis ordered during admission. Numerator Statement: Surgery patients with recommended VTE prophylaxis ordered during admission. Denominator Statement: All selected surgery patients. Exclusions: Patients who are less than 18 years of age. Patients with procedures performed entirely by laparoscope. Patients whose total surgery time is less than or equal to 30 minutes. Patients who stayed less than or equal to 24 hours postoperatively. Burn patients (refer to Specifications Manual, National Healthcare Quality Measures, Appendix A, Table 5.14 for ICD-9-CM codes). Patients who are on warfarin prior to admission. Patients with contraindications to both mechanical and pharmacological prophylaxis. Patients whose ICD-9-CM Prinicpal Procedure occurred prior to the date of admission Adjustment/Stratification: no risk adjustment necessary/No stratification except by surgery type and those are: Intracranial neurosurgery, Appendix a, Table 5.17; General surgery, Appendix A, Table 5.19; Gynecologic Surgery, Appendix A, Table 5.20; Urologic Surgery, Appendix A, Table 5.21; Elective total hip, Appendix A, Table 5.22; Elective total knee, Appendix A, Table 5.23; Hip fracture surgery, Appendix A, Table 5.24 Level of Analysis: Facility/Agency; Population: national; Program: QIO; can be measured at all levels Type of Measure: Process Data Source: Electronic health/medical record; paper medical record/flow-sheet. Vendor tools or CART. CART is available for download free at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093 Measure Steward: Centers for Medicare & Medicaid Services | 7500 Security Boulevard | Baltimore | Maryland | 21244
Steering Committee Recommendation for Endorsement: Did not pass Importance to Measure and Report. The Committee determined that the measure is unnecessary in light of Measure 0218 that addresses VTE prophylaxis administration
If applicable, Conditions/Questions for Developer: Developer Response: If applicable, Questions to the Steering Committee:
1. Importance to Measure and Report: Y-2; N-17 *(1a. Impact; 1b. Performance gap; 1c. Outcome or Evidence)* Rationale: The Committee determined this measure was not necessary since measure 0218 is more proximal to the outcome.
2. Scientific Acceptability of Measure Properties: *(2a. Precise specifications; 2b. Reliability testing; 2c. Validity testing; 2d. Exclusions justified; 2e. Risk adjustment/stratification; 2f. Meaningful differences; 2g. Comparability; 2h. Disparities)* Rationale:

0217 Surgery patients with recommended venous thromboembolism (VTE) prophylaxis ordered
3. Usability: *(3a. Meaningful/useful for public reporting and quality improvement; 3b. Harmonized; 3c. Distinctive or additive value to existing measures)* Rationale:
4. Feasibility: *(4a. Clinical data generated during care process; 4b. Electronic sources; 4c. Exclusions – no additional data source; 4d. Susceptibility to inaccuracies/ unintended consequences identified 4e. Data collection strategy can be implemented)* Rationale:
Public and Member Comments No comments were received on this measure.

MEASURES WITHDRAWN FROM CONSIDERATION

The measure developer has indicated that they no longer maintain the following measures and request retirement from NQF's measure portfolio. The Committee agreed that better measures have replaced this in NQF's portfolio.

Title	Description
0125 Timing of antibiotic prophylaxis for cardiac surgery patients (STS)	Percent of patients aged 18 years and older undergoing cardiac surgery who received prophylactic antibiotics within one hour of surgical incision or start of procedure if no incision was required (two hours if receiving vancomycin or fluoroquinolone).

NOTES

1. DeFrances CJ, Lucas CA, Buie VC, et al., 2006 national hospital discharge survey, *Natl Health Stat Report*, 2008;5:1-20. Available at www.cdc.gov/nchs/data/nhsr/nhsr005.pdf. Last accessed May 2012.

2. Cullen KA, Hall MJ, Golosinskiy A. Ambulatory surgery in the United States, 2006. *Natl Health Stat Report*, 2009; 11:1-28. Available at www.cdc.gov/nchs/data/nhsr/nhsr011.pdf. Last accessed May 2012.
3. DeFrances, Lucas and Buie.
4. NQF, *Measure Evaluation Criteria*, Washington, DC: National Quality Forum; 2009. Available at www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=43763. Last accessed May 2011.

5. Reserve status is defined as highly credible, reliable and valid measures that have high levels of performance with little opportunity for improvement. These measures meet all of the NQF criteria except for one subcriteria, opportunity for improvement. Performance can be monitored in the future if necessary to ensure that performance does not decline.

APPENDIX A – SPECIFICATIONS FOR THE NATIONAL VOLUNTARY CONSENSUS STANDARDS: SURGERY ENDORSEMENT MAINTENANCE 2010: A CONSENSUS REPORT

CARDIAC-CABG

CARDIAC-CABG: PROPHYLAXIS

CARDIAC-CABG: VALVE REPLACEMENT/REPAIR

CARDIAC, APPENDECTOMY and PANCREATIC RESECTION

CARDIAC and VASCULAR

ESOPHAGEAL RESECTION and TRANSFUSION

GENERAL, OPHTHALMOLOGY, ORTHOPEDICS and PEDIATRICS

GENERAL, PROPHYLAXIS and WOUND DEHISCENCE

VENOUS THROMOEMBOLISM (VTE)

	0114 Risk-adjusted post-operative renal failure
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Description	Percent of patients aged 18 years and older undergoing isolated CABG (without pre-existing renal failure) who develop post-operative renal failure or require dialysis
Type	Outcome
Data Source	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-December of 2010)---http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-December of 2010
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients undergoing isolated CABG (without pre-existing renal failure)who develop post-operative renal failure or require dialysis
Numerator Details	Time Window: During the hospitalization for surgery, which includes the entire postoperative period up to discharge, even if over 30 days. Definition of renal failure/dialysis requirement – Patients with acute renal failure or worsening renal function resulting in one or both of the following: - Increase of serum creatinine to 4.0 or higher, or 3x the most recent preoperative creatinine level - New requirement for dialysis postoperatively Number of isolated CABG procedures in which post-operative renal failure [CRenFail (STS Adult Cardiac Surgery Database Version 2.73] is marked as "yes"
Denominator Statement	All patients undergoing isolated CABG
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: 12 months Number of isolated CABG procedures including re-operations Isolated CABG is determined as a procedure for which all of the following apply: - OpCAB is marked "Yes" - VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes") - OCarASDTy is marked "PFO" or "missing" - OCarAFibAProc is marked "primarily epicardial" or "missing" and - OpValve, VSAV, VSAVPr, ResectSubA, VSMV, VSMVPr, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"
Exclusions	Patients with documented history of renal failure, baseline serum creatinine of 4.0 or higher; prior renal transplants are not considered pre-operative renal failure unless since transplantation their Cr has been or is 4.0 or higher
Exclusion Details	(Dialysis) is marked yes; Last Creatinine Level (CreatLst) is 4.0 or higher
Risk Adjustment	case-mix adjustment Please see attachment Attachment 2a.15 Detailed Risk Model.pdf
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	N/A

	0115 Risk-adjusted surgical re-exploration

	0115 Risk-adjusted surgical re-exploration
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Description	Percent of patients aged 18 years and older undergoing isolated CABG who require a return to the operating room for bleeding with or without tamponade, graft occlusion, valve dysfunction, or other cardiac reason
Type	Outcome
Data Source	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-December of 2010)---http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-December of 2010
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients undergoing isolated CABG who require return to the operating room for mediastinal bleeding with or without tamponade, graft occlusion, valve dysfunction, or other cardiac reason
Numerator Details	Time Window: During the hospitalization for surgery, which includes the entire postoperative period up to discharge, even if over 30 days 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 Categories	Female; Male 18 and older
Denominator Details	Time Window: 12 months Number of isolated CABG procedures Isolated CABG is determined as a procedure for which all of the following apply: - OpCAB is marked “Yes” - (VADProc is marked “No” or “Missing”) or (VADProc is marked “Yes, Implanted” and UnplVAD is marked “yes”) - OCarASDTy is marked “PFO” or “missing” - OCarAFibAProc is marked “primarily epicardial” or “missing” and - OpValve, VSAV, VSAVPr, ResectSubA, VSMV, VSMVPr, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked “no” or “missing”
Exclusions	N/A
Exclusion Details	N/A
Risk Adjustment	case-mix adjustment Please see attachment Attachment 2a.15 Detailed Risk Model-634267294901293682.pdf
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	N/A

	0129 Risk-adjusted prolonged intubation (ventilation)
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Description	Percent of patients aged 18 years and older undergoing isolated CABG who require intubation for more than 24 hours
Type	Outcome
Data Source	Registry data

	0129 Risk-adjusted prolonged intubation (ventilation)
	URL Data Collection Form (an updated version will be made available on the STS Website in mid-December of 2010)--- http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-December of 2010
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients undergoing isolated CABG who require intubation > 24 hours
Numerator Details	Time Window: Number of isolated CABG procedures in which Complications-Pulmonary_Vent Prolonged (CPVntLng) is marked "yes"
Denominator Statement	All patients undergoing isolated CABG
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: 12 months Number of isolated CABG procedures Isolated CABG is determined as a procedure for which all of the following apply: -OpCAB is marked “Yes” -(VADProc is marked “No” or “Missing”) or (VADProc is marked “Yes, Implanted” and UnplVAD is marked “yes”) -OCarASDTy is marked “PFO” or “missing” -OCarAFibAProc is marked “primarily epicardial” or “missing” and -OpValve, VSAV, VSAVPr, ResectSubA, VSMV, VSMVPr, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked “no” or “missing”
Exclusions	n/a
Exclusion Details	
Risk Adjustment	case-mix adjustment Please see attachment Attachment 2a.15 Detailed Risk Model-634267353926995758.pdf
Stratification	
Type Score	Rate/proportion better quality = lower score
Algorithm	

	0131 Risk-adjusted stroke/cerebrovascular accident
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Description	Percent of patients aged 18 years and older undergoing isolated CABG who have a postoperative stroke (i.e., any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that did not resolve within 24 hours
Type	Outcome
Data Source	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-December of 2010)--- http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-December of 2010
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients undergoing isolated CABG who have a postoperative stroke (i.e., any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that did not resolve within 24 hours

	0131 Risk-adjusted stroke/cerebrovascular accident
Numerator Details	Time Window: During the hospitalization for surgery, which includes the entire postoperative period up to discharge, even if over 30 days. Number of isolated CABG procedures in which postoperative stroke [CNStrokP (STS Adult Cardiac Surgery Database Version 2.73)] is marked "yes"
Denominator Statement	All patients undergoing isolated CABG
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: 12 months Number of isolated CABG procedures Isolated CABG is determined as a procedure for which all of the following apply: -OpCAB is marked "Yes" -(VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes") -OCarASDTy is marked "PFO" or "missing" -OCarAFibAProc is marked "primarily epicardial" or "missing" and -OpValve, VSAV, VSAVPr, ResectSubA, VSMV, VSMVPr, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"
Exclusions	
Exclusion Details	
Risk Adjustment	case-mix adjustment Please see attachment Attachment 2a.15 Detailed Risk Model-634267362265581794.pdf
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	N/A

	0119 Risk-adjusted operative mortality for CABG
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Description	Percent of patients aged 18 years and older undergoing isolated CABG who die, including both 1) all deaths occurring during the hospitalization in which the CABG was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Type	Outcome
Data Source	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-December of 2010)---http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-December of 2010
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients undergoing isolated CABG who die, including both 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure
Numerator Details	Time Window: During hospitalization regardless of length of stay or within 30 days of surgery if discharged Number of isolated CABG procedures with an operative mortality; Number of isolated 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	All patients undergoing isolated CABG

	0119 Risk-adjusted operative mortality for CABG
Statement	
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: 12 months Number of isolated CABG procedures Isolated CABG is determined as a procedure for which all of the following apply: -OpCAB is marked "Yes" -(VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes") -OCarASDTy is marked "PFO" or "missing" -OCarAFibAProc is marked "primarily epicardial" or "missing" and -OpValve, VSAV, VSAVPr, ResectSubA, VSMV, VSMVPr, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"
Exclusions	N/A
Exclusion Details	N/A
Risk Adjustment	case-mix adjustment Please see attachment Attachment 2a.15 Detailed Risk Model-634267308759980238.pdf
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	N/A

	0116 Anti-platelet medication at discharge
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Description	Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on anti-platelet medication
Type	Process
Data Source	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-December of 2010)---http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-December of 2010
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients undergoing isolated CABG who were discharged on anti-platelet medication
Numerator Details	Time Window: 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 Categories	Female; Male 18 and older

	0116 Anti-platelet medication at discharge
Denominator Details	Time Window: 12 months Number of isolated CABG procedures excluding cases with in-hospital mortality or cases for which discharge aspirin use was contraindicated. Isolated CABG is determined as a procedure for which all of the following apply: -OpCAB is marked "Yes" -(VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes") -OCarASDTy is marked "PFO" or "missing" -OCarAFibAProc is marked "primarily epicardial" or "missing" and -OpValve, VSAV, VSAVPr, ResectSubA, VSMV, VSMVPr, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"
Exclusions	Cases are removed from the denominator if there was an in-hospital mortality or if discharge aspirin was contraindicated. In other words, if discharge aspirin is marked contraindicated or there is an in-hospital mortality, the patient is excluded from the denominator, and therefore, the measure is calculated without those patients.
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 necessary
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	N/A

	0118 Anti-lipid treatment discharge
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Description	Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on a statin or other lipid-lowering regimen
Type	Process
Data Source	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-January 2011 --- http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-January 2011
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients undergoing isolated CABG who were discharged on a statin or other lipid-lowering regimen
Numerator Details	Time Window: Number of isolated CABG procedures in which discharge lipid lowering medication [DCLipid (STS Adult Cardiac Surgery Database Version 2.73)] is marked "yes"
Denominator Statement	All patients undergoing isolated CABG
Denominator Categories	Female; Male 18 yrs and older
Denominator Details	Time Window: 12 months Number of isolated CABG procedures excluding cases with in-hospital mortality or cases for which discharge anti-lipid treatment use was contraindicated. Isolated CABG is determined as a procedure for which all of the following apply: -OpCAB is marked "Yes" -(VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes")

	0118 Anti-lipid treatment discharge
	-OCarASDTy is marked “PFO” or “missing” -OCarAFibAProc is marked “primarily epicardial” or “missing” and -OpValve, VSAV, VSAVPr, ResectSubA, VSMV, VSMVPr, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked “no” or “missing”
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 necessary
Stratification	
Type Score	Rate/proportion better quality = higher score
Algorithm	

	0130 Risk-adjusted deep sternal wound infection rate
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Description	Percent of patients aged 18 years and older undergoing isolated CABG who, within 30 days postoperatively, develop deep sternal wound infection involving muscle, bone, and/or mediastinum requiring operative intervention
Type	Outcome
Data Source	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-January 2011)---http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-January 2011
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients who, within 30 days postoperatively, develop deep sternal wound infection involving muscle, bone, and/or mediastinum requiring operative intervention. Must have all of the following conditions: -Wound opened with excision of tissue (I&D) or re-exploration of mediastinum -Positive culture unless patient on antibiotics at time of culture or no culture obtained -Treatment with antibiotics beyond perioperative prophylaxis
Numerator Details	Time Window: Within 30 days postoperatively Number of isolated CABG procedures in which postoperative deep sternal wound infection [CIStDeep (STS Adult Cardiac Surgery Database Version 2.73)] is marked "yes"
Denominator Statement	All patients undergoing isolated CABG
Denominator Categories	Female; Male 18 yrs and older
Denominator Details	Time Window: 12 months Number of isolated CABG procedures; Isolated CABG is determined as a procedure for which all of the following apply: -OpCAB is marked “Yes” -(VADProc is marked “No” or “Missing”) or (VADProc is marked “Yes, Implanted” and UnplVAD is marked “yes”) -OCarASDTy is marked “PFO” or “missing” -OCarAFibAProc is marked “primarily epicardial” or “missing” and -OpValve, VSAV, VSAVPr, ResectSubA, VSMV, VSMVPr, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked “no” or “missing”

	0130 Risk-adjusted deep sternal wound infection rate
Exclusions	
Exclusion Details	
Risk Adjustment	case-mix adjustment Please see attachment Attachment 2a.15 Detailed Risk Model-634282057229855466.pdf
Stratification	
Type Score	Rate/proportion better quality = lower score
Algorithm	

	0134 Use of internal mammary artery (IMA) in coronary artery bypass graft (CABG)
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Description	Percentage of patients aged 18 years and older undergoing isolated coronary artery bypass graft (CABG) who received an internal mammary artery (IMA) graft
Type	Process
Data Source	Electronic Clinical Data: Registry STS Adult Cardiac Surgery Database – Version 2.73 URL Data Collection Form (an updated version will be made available on the STS Website in mid-December of 2010)---http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-December of 2010
Level	Clinician: Group/Practice, Clinician: Individual, Clinician: Team, Facility, Population: County or City, Population: National, Population: Regional, Population: State
Setting	Hospital/Acute Care Facility
Numerator Statement	Number of patients undergoing isolated coronary artery bypass graft (CABG) who received an internal mammary artery (IMA) graft
Numerator Details	Time Window: Number of isolated CABG procedures in which IMA Artery Used [IMAArtUs (STS Adult Cardiac Surgery Database Version 2.73)] is marked "Left IMA," "Right IMA," or "Both IMAs"
Denominator Statement	All patients undergoing isolated CABG
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: 12 months Number of isolated CABG procedures Isolated CABG is determined as a procedure for which all of the following apply: - OpCAB is marked "Yes" - (VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes") - OCarASDTy is marked "PFO" or "missing" - OCarAFibAProc is marked "primarily epicardial" or "missing" and - OpValve, VSAV, VSAVPr, ResectSubA, VSMV, VSMVPr, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"
Exclusions	Cases are removed from the denominator if the patient had a previous CABG prior to the current admission or if IMA was not used and one of the following reasons was provided: - Subclavian stenosis - Previous cardiac or thoracic surgery - Previous mediastinal radiation - Emergent or salvage procedure - No LAD disease

	0134 Use of internal mammary artery (IMA) in coronary artery bypass graft (CABG)
Exclusion Details	Patients with previous CABG, identified where PrCAB is marked "yes" or IMA Artery Used (IMAArtUs) is marked “no IMA” and primary reason for no IMA (NoIMARsn) is marked as any of the following: - Subclavian stenosis - Previous cardiac or thoracic surgery - Previous mediastinal radiation - Emergent or salvage procedure - No LAD disease
Risk Adjustment	no risk adjustment necessary N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	N/A

	0113 Participation in a systematic database for cardiac surgery
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Description	Participation in a clinical database with broad state, regional, or national representation, that provides regular performance reports based on benchmarked data
Type	Structure/management
Data Source	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-December of 2010) --- http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-December of 2010
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Does the facility participate in a clinical database with broad state, regional, or national representation, that provides regular performance reports based on benchmarked data? (y/n)
Numerator Details	Time Window: 12 months Participation in a clinical database with broad state, regional, or national representation, that provides regular performance reports based on benchmarked data. Participation in the STS Adult Cardiac Surgery Database, for example, is initiated by the surgeons and/or hospital and is defined as quarterly submission of 100% of cases via an approved software system to the Duke Clinical Research Institute, the data repository for the three STS Databases. STS’s audit cross-checks submitted cases against hospital logs to assure all cases have been captured.
Denominator Statement	N/A
Denominator Categories	Female; Male 18 years or older on date of encounter
Denominator Details	Time Window:
Exclusions	
Exclusion Details	
Risk Adjustment	no risk adjustment necessary
Stratification	N/A

	0113 Participation in a systematic database for cardiac surgery
Type Score	Categorical passing score defines better quality
Algorithm	N/A

	0300 Cardiac surgery patients with controlled postoperative blood glucose
Steward	Centers for Medicare & Medicaid Services | 7500 Security Boulevard, Mail Stop S3-01-02 | Baltimore | Maryland | 21244-1850
Description	Cardiac surgery patients with controlled postoperative blood glucose (less than or equal to 180mg/dL) in the timeframe of 18 to 24 hours after Anesthesia End Time.
Type	Process
Data Source	Administrative claims, Paper Records Vendor tools or CART (both electronic). CART is available for download free at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093 URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093 Attachment Inf-4 MIF with draft algorithm 6 8 2011.pdf
Level	Facility, Population: National, Population: Regional
Setting	Hospital/Acute Care Facility
Numerator Statement	Cardiac surgery patients with controlled postoperative blood glucose (less than or equal to ?180mg/dL) in the timeframe of 18 to 24 hours after Anesthesia End Time.
Numerator Details	Time Window: 18-24 hours after Anesthesia End Time. If no blood glucose levels are documented for that time, the timeframe of 12-18 hours after Anesthesia End Time will be evaluated. Required data elements: Glucose Allowable values: 1 All values collected between 18 and 24 hours after Anesthesia End Time were = 180 mg/dL. (passes) 2 A single value collected between 18 and 24 hours after Anesthesia End Time was > 180 mg/dL but all other values after the higher value were = 180 mg/dL prior to the end point of 24 hours after Anesthesia End Time. (passes) 3 A single value collected between 18 and 24 hours after Anesthesia End Time was > 180 mg/dL and NO other values after the higher value were = 180 mg/dL prior to the end point of 24 hours after Anesthesia End Time. (fails) 4 No values collected between 18 and 24 hours after Anesthesia End Time were = 180 mg/dL or unable to determine from medical record documentation. (fails) 5 The patient discharged prior to 24 hours after Anesthesia End Time.
Denominator Statement	Cardiac surgery patients with no evidence of prior infection Include patients with an ICD-9-CM Principle Procedure code or ICD-9-CM Other Procedure codes of selected surgeries AND an ICD-9-CM for ICD-9-CM codes Principle Procedure code or ICD-9-CM Other Procedure codes of selected surgeries
Denominator Categories	Female; Male >/= 18 years of age
Denominator Details	Time Window: Inpatient admission to discharge Data elements: • Anesthesia Start Date • Admission Date • Birthdate • Clinical Trial • ICD-9-CM Principal Diagnosis Code • ICD-9-CM Principal Procedure Code • Infection Prior to Anesthesia
Exclusions	Excluded Populations • Patients less than 18 years of age • Patients who have a length of Stay greater than 120 days • Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in Appendix

	0300 Cardiac surgery patients with controlled postoperative blood glucose
	A, Table 5.09 for ICD-9-CM codes) • Burn and transplant patients (as defined in Appendix A, Tables 5.14 and 5.15 for ICD-9-CM codes) • Patients enrolled in clinical trials • Patients whose ICD-9-CM principal procedure occurred prior to the date of admission • Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure of interest • Patients who discharged prior to 24 hours after Anesthesia End Time.
Exclusion Details	Data Elements: • Anesthesia Start Date • Admission Date • Birthdate • Clinical Trial • ICD-9-CM Principal Diagnosis Code • ICD-9-CM Principal Procedure Code • Infection Prior to Anesthesia
Risk Adjustment	no risk adjustment necessary N/A
Stratification	No stratification
Type Score	Rate/proportion better quality = higher score
Algorithm	The PDF of the draft Measure Information Form is attached, with the algorithm at 2a.29.

	0120 Risk-adjusted operative mortality for aortic valve replacement (AVR)
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
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	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-January 2011)---http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf - an updated version will be made available on the STS Website in mid-January 2011
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients 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	Time Window: During hospitalization regardless of length of stay or within 30 days of surgery if discharged 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 aged 18 years and older undergoing isolated AVR surgery
Denominator Categories	Female; Male 18 yrs and older
Denominator Details	Time Window: 60 months Number of isolated AVR procedures; Isolated AVR is determined as a procedure for which all of the following apply: -OpValve is marked "Yes"

	0120 Risk-adjusted operative mortality for aortic valve replacement (AVR)
	-VSAV is marked "Yes" -VSAVPr is marked "Replacement" -(VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes") -OCarASDTy is marked "PFO" or "missing" -OCarAFibAProc is marked "primarily epicardial" or "missing" and -OpCAB , ResectSubA , VSMV, VSMVPr , OpTricus, OpPulmOpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"
Exclusions	
Exclusion Details	
Risk Adjustment	case-mix adjustment Please see attachment Attachment 2a.15 Detailed Risk Model-634282025771376018.pdf
Stratification	
Type Score	Rate/proportion better quality = lower score
Algorithm	

	0121 Risk-adjusted operative mortality for mitral valve (MV) replacement
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
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	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-December of 2010)---http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-December of 2010
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients 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	Time Window: During hospitalization regardless of length of stay or within 30 days of surgery if discharged 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 aged 18 years and older undergoing isolated MV Replacement surgery
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: 60 months Number of isolated MV Replacement procedures; Isolated MV Replacement is determined as a procedure for which all of the following apply: -OpValve is marked "Yes" -VSMV is marked "Yes" -VSMVPr is marked "Replacement" -(VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes")

	0121 Risk-adjusted operative mortality for mitral valve (MV) replacement
	-OCarASDTy is marked "PFO" or "missing" -OCarAFibAProc is marked "primarily epicardial" or "missing" and -OpCAB, VSAV, VSAVPr, ResectSubA, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"
Exclusions	N/A
Exclusion Details	
Risk Adjustment	case-mix adjustment Please see attachment Attachment 2a.15 Detailed Risk Model-634267316854669390.pdf
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	N/A

	0122 Risk-adjusted operative mortality MV replacement + CABG surgery
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
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	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-January 2011)---http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-January 2011
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients 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	Time Window: During hospitalization regardless of length of stay or within 30 days of surgery if discharged 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 aged 18 years and older undergoing combined MV Replacement + CABG
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: 60 months Number of MV Replacement + CABG procedures; MV Replacement + CABG is determined as a procedure for which all of the following apply: -OpCAB is marked as "Yes" -OpValve is marked "Yes" -VSMV is marked "Yes" -VSMVPr is marked "Replacement" -(VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes") -OCarASDTy is marked "PFO" or "missing" -OCarAFibAProc is marked "primarily epicardial" or "missing" and

	0122 Risk-adjusted operative mortality MV replacement + CABG surgery
	-VSAV, VSAVPr, ResectSubA, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"
Exclusions	
Exclusion Details	
Risk Adjustment	case-mix adjustment Please see attachment Attachment 2a.15 Detailed Risk Model-634281986749363998.pdf
Stratification	
Type Score	Rate/proportion better quality = lower score
Algorithm	

	0123 Risk-adjusted operative mortality for aortic valve replacement (AVR) + CABG surgery
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
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	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-January 2011)---http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-January 2011
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients 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	Time Window: During hospitalization regardless of length of stay or within 30 days of surgery if discharged 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 aged 18 years and older undergoing combined AVR + CABG
Denominator Categories	Female; Male 18 yrs and older
Denominator Details	Time Window: 60 months Number of AVR + CABG procedures; AVR + CABG is determined as a procedure for which all of the following apply: -OpCAB is marked "Yes" -OpValve is marked "Yes" -VSAV is marked "Yes" -VSAVPr is marked "Replacement" -(VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes") -OCarASDTy is marked "PFO" or "missing" -OCarAFibAProc is marked "primarily epicardial" or "missing" and -ResectSubA, VSMV, VSMVPr, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"
Exclusions	

	0123 Risk-adjusted operative mortality for aortic valve replacement (AVR) + CABG surgery
Exclusion Details	
Risk Adjustment	case-mix adjustment Please see attachment Attachment 2a.15 Detailed Risk Model-634282035059769330.pdf
Stratification	
Type Score	Rate/proportion better quality = lower score
Algorithm	

	1501 Risk-adjusted operative mortality for mitral valve (MV) repair
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
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	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-December of 2010)---http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-December of 2010
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients 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	Time Window: During hospitalization regardless of length of stay or within 30 days of surgery if discharged 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 aged 18 years and older undergoing isolated MV Repair surgery (This measure applies to the procedure of MV repair, regardless of approach)
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: 60 months Number of isolated MV Repair procedures; Isolated MV Repair is determined as a procedure for which all of the following apply: -OpValve is marked "Yes" -VSMV is marked "Yes" -VSMVPr is marked "Repair" -(VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes") -OCarASDTy is marked "PFO" or "missing" -OCarAFibAProc is marked "primarily epicardial" or "missing" and -OpCAB, VSAV, VSAVPr, ResectSubA, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc , OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"
Exclusions	N/A
Exclusion Details	

	1501 Risk-adjusted operative mortality for mitral valve (MV) repair
Risk Adjustment	case-mix adjustment Please see attachment Attachment 2a.15 Detailed Risk Model-634267381711241302.pdf
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	N/A

	1502 Risk-adjusted operative mortality for MV repair + CABG surgery
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
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	Registry data URL Data Collection Form (an updated version will be made available on the STS Website in mid-January 2011)-- http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataCollectionForm2_7_Annotated_20101021.pdf URL http://www.sts.org/documents/pdf/ndb2010/STSAdultCVDataSpecificationsV2_7_20101021.pdf -- an updated version will be made available on the STS Website in mid-January 2011
Level	Clinicians : Group, Facility/Agency, Population : Counties or cities, Population : National, Population : Regional/network, Population : states
Setting	Hospital
Numerator Statement	Number of patients 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	Time Window: During hospitalization regardless of length of stay or within 30 days of surgery if discharged 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 aged 18 years and older undergoing combined MV Repair + CABG
Denominator Categories	Female; Male 18 yrs and older
Denominator Details	Time Window: 60 months Number of MV Repair + CABG procedures; MV Repair + CABG is determined as a procedure for which all of the following apply: -OpCAB is marked as "Yes" -OpValve is marked "Yes" -VSMV is marked "Yes" -VSMVPr is marked "Repair" -(VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "Yes") -OCarASDTy is marked "PFO" or "missing" -OCarAFibAProc is marked "primarily epicardial" or "missing" and -VSAV, VSAVPr, ResectSubA, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"
Exclusions	
Exclusion Details	
Risk Adjustment	case-mix adjustment Please see attachment Attachment 2a.15 Detailed Risk Model-634282068151467310.pdf

	1502 Risk-adjusted operative mortality for MV repair + CABG surgery
Stratification	
Type Score	Rate/proportion better quality = lower score
Algorithm	

	0127 Preoperative beta blockade
Steward	Society of Thoracic Surgeons
Description	Percent of patients aged 18 years and older undergoing isolated CABG who received beta blockers within 24 hours preceding surgery.
Type	Process
Data Source	Electronic Clinical Data : Registry STS Adult Cardiac Surgery Database – Version 2.73 URL Data Collection Form --- http://www.sts.org/sites/default/files/documents/STSAdultCVDataCollectionForm2_73_Annotated.pdf URL http://www.sts.org/sites/default/files/documents/STSAdultCVDataSpecificationsV2_73.pdf
Level	Clinician: Group/Practice, Clinician: Individual, Facility, Population: Community, Population: County or City, Population: National, Population: Regional, Population: State
Setting	Hospital/Acute Care Facility
Numerator Statement	Number of patients undergoing isolated CABG who received beta blockers within 24 hours preceding surgery
Numerator Details	Time Window: 24 hours preceding surgery 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"
Denominator Statement	All patients undergoing isolated CABG
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: 12 months Number of isolated CABG procedures excluding cases for which preoperative beta blockers were contraindicated. 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 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	Cases are removed from the denominator if preoperative beta blocker was contraindicated.
Exclusion Details	Procedures with preoperative beta blockers [MedBeta (STS Adult Cardiac Surgery Database Version 2.73, Sequence number 1710)] marked as "Contraindicated"
Risk Adjustment	no risk adjustment necessary n/a
Stratification	n/a
Type Score	Rate/proportion better quality = higher score

	0127 Preoperative beta blockade
Algorithm	n/a

	0284 Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
Steward	Centers for Medicare & Medicaid Services | 7500 Security Boulevard, Mail Stop S3-01-02 | Baltimore | Maryland | 21244-1850
Description	Percentage of patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period. To be in the denominator, the patient must be on a beta-blocker prior to arrival. The case is excluded if the patient is not on a beta-blocker prior to arrival, as described below in 2a4.
Type	Process
Data Source	Administrative claims, Paper Records Vendor tools (electronic) or CART. CART is available for download free at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093 URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093 URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228754600169
Level	Facility, Population: National, Population: Regional
Setting	Hospital/Acute Care Facility
Numerator Statement	Surgery patients on beta blocker therapy prior to admission who receive a beta blocker during the perioperative period
Numerator Details	Time Window: The perioperative period for the currently endorsed measure has been expanded. NOTE: After input from the TEP, there are changes proposed to this measure. The perioperative timeframe will be expanded and the hourly parameters removed. The perioperative period for the SCIP Cardiac measures is defined as the day prior to surgery through postoperative day two (POD 2) with day of surgery being day zero. If the postoperative length of stay = 2 days, the measure evaluates the administration of more than one dose of a beta-blocker: the day prior to or the day of surgery and on postoperative day one (POD 1) or postoperative day two (POD 2) unless reasons for not administering the medication were documented. If the postoperative length of stay was < 2 days, the measure will evaluate the administration of the beta-blocker on the day prior to or the day of surgery only, unless reasons for not administering the medication were documented. Data element: Beta-Blocker Perioperative
Denominator Statement	All surgery patients on daily beta blocker therapy prior to arrival Data Element Data Collection Question: Is there documentation that the patient was on a daily beta-blocker therapy prior to arrival? Yes/No Notes for Abstraction: • If there is documentation that the beta-blocker was taken daily at “home” or is a “current” medication, select “Yes”. • If a beta-blocker is listed as a home medication without designation of how often or when it is taken, select “Yes”. • If there is documentation that the beta-blocker is a home/current medication and additional documentation indicates the beta-blocker was not taken daily, e.g., the medication reconciliation form lists a beta-blocker as a home/current medication, but documentation in the nurses notes state “patient denies taking beta-blocker every day", select “No”. • If there is documentation that the beta-blocker is on a schedule other than daily, select “No”. • If there is documentation that the beta-blocker was given on a “prn” basis for cardiac or non-cardiac reasons, select “No”.
Denominator Categories	Female; Male Patients >/= 18 years of age
Denominator Details	Time Window: Entire inpatient acute admission Data Elements: Admission Date Anesthesia Start Date

	0284 Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
	Beta-Blocker Current Medication Beta-Blocker During Pregnancy Birthdate Clinical Trial Discharge Date ICD-9-CM Principal Procedure Code Laparoscope Perioperative Death Reason for Not Administering Beta-Blocker-Perioperative Sex
Exclusions	• Patients less than 18 years of age • Patients who have a Length of Stay greater than 120 days • Patients enrolled in clinical trials • Patients whose ICD-9-CM principal procedure occurred prior to the date of admission • Patients who expired during the perioperative period • Pregnant patients taking a beta-blocker prior to arrival • Patients with a documented Reason for Not Administering Beta-Blocker-Perioperative • Patients with Ventriular Assist Devices or Heart Transplantation
Exclusion Details	Data Elements: Beta-Blocker During Pregnancy Clinical Trial Perioperative Death Reason for Not Administering Beta-Blocker-Perioperative
Risk Adjustment	no risk adjustment necessary
Stratification	No stratification
Type Score	Rate/proportion better quality = higher score
Algorithm	Variable Key: Patient Age, Surgery Days 1. Start processing. Run cases that are included in the Surgical Care Improvement Project (SCIP) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Calculate Patient Age. The Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age. 3. Check Patient Age a. If Patient Age is less than 18 years, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If Patient Age is greater than or equal to 18 years, continue processing and proceed to Laparoscope. 4. Check Laparoscope a. If Laparoscope is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Laparoscope equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Laparoscope equals 2, continue processing and proceed to Clinical Trial. 5. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Anesthesia Start Date. 6. Check Anesthesia Start Date a. If the Anesthesia Start Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Anesthesia Start Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.

	0284 Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
	c. If Anesthesia Start Date equals a Non Unable To Determine Value, continue processing and proceed to the Surgery Days calculation. 7. Calculate Surgery Days. Surgery Days, in days, is equal to the Anesthesia Start Date minus the Admission Date. 8. Check Surgery Days a. If the Surgery Days is less than zero, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the Surgery Days is greater than or equal to zero, continue processing and proceed to Perioperative Death. 9. Check Perioperative Death a. If Perioperative Death is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Perioperative Death equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Perioperative Death equals No, continue processing and proceed to Beta-Blocker Current Medication. 10. Check Beta-Blocker Current Medication a. If the Beta-Blocker Current Medication is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Beta-Blocker Current Medication equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If the Beta-Blocker Current Medication equals Yes, continue processing and proceed to Sex. 11. Check Sex a. If Sex is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Sex equals Female, continue processing and check Beta-Blocker During Pregnancy. 1. If Beta-Blocker During Pregnancy is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. 2. If Beta-Blocker During Pregnancy equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. 3. If Beta-Blocker During Pregnancy equals 2, continue processing and proceed to Beta-Blocker Preoperative. c. If Sex equals Male or Unknown, continue processing and proceed to Beta-Blocker Perioperative. 12. Check Beta-Blocker Perioperative a. If Beta-Blocker Perioperative is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Beta-Blocker Perioperative equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Beta-Blocker Perioperative equals No, continue processing and check Reason for Not Administering Beta-Blocker Perioperative. 13. Check Reason for Not Administering Beta-Blocker Perioperative a. If Reason for Not Administering Beta-Blocker Perioperative is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Reason for Not Administering Beta-Blocker Perioperative equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Reason for Not Administering Beta-Blocker Perioperative equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.

	0117 Beta blockade at discharge
Steward	Society of Thoracic Surgeons | 633 North Saint Clair Street, Suite 2320 | Chicago | Illinois | 60611
Description	Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on beta blockers
Type	Process
Data Source	Registry data STS Adult Cardiac Surgery Database – Version 2.73 URL http://www.sts.org/sites/default/files/documents/STSAdultCVDataCollectionForm2_73_Annotated.pdf URL http://www.sts.org/sites/default/files/documents/STSAdultCVDataSpecificationsV2_73.pdf
Level	Clinicians: Group, Facility/Agency, Population: Counties or cities, Population: National, Population: Regional/network, Population: states
Setting	Hospital

	0117 Beta blockade at discharge
Numerator Statement	Number of patients undergoing isolated CABG who were discharged on beta blockers
Numerator Details	Time Window: Number of isolated CABG procedures in which discharge beta blockers [DCBeta (STS Adult Cardiac Surgery Database Version 2.73)] is marked "yes"
Denominator Statement	All patients undergoing isolated CABG
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: 12 months Number of isolated CABG procedures excluding cases with in-hospital mortality or cases for which discharge beta blocker use was contraindicated. 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 Type] 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 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	Cases are removed from the denominator if there was an in-hospital mortality or if discharge beta blocker was contraindicated.
Exclusion Details	Mortality Discharge Status (MtDCStat), Mortality Date (MtDate), and Discharge Date (DischDt) indicate an in-hospital mortality; discharge beta blocker (DCBeta) marked as "Contraindicated"
Risk Adjustment	no risk adjustment necessary N/A
Stratification	
Type Score	Rate/proportion better quality = higher score
Algorithm	

	0273 Perforated appendix admission rate (PQI 2)
Steward	Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850
Description	Percentage of admissions for appendicitis within county with perforated appendix.
Type	Outcome
Data Source	Electronic administrative data/claims The data source is hospital discharge data such as the HCUP State Inpatient Databases (SID) or equivalent using UB-04 coding standards. The data collection instrument is public-use AHRQ QI software available in SAS or Windows versions. URL None http://www.qualityindicators.ahrq.gov/software.htm None URL http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf None
Level	Population: Counties or cities, Population: states
Setting	Ambulatory Care: Office
Numerator	All discharges with ICD-9-CM diagnosis code for perforations or abscesses of appendix in any field among cases meeting

	0273 Perforated appendix admission rate (PQI 2)
Statement	the inclusion rules for the denominator.
Numerator Details	Time Window: Time window can be determined by user, but is generally a calendar year. All discharges with ICD-9-CM diagnosis code for perforations or abscesses of appendix in any field among cases meeting the inclusion rules for the denominator. Include ICD-9-CM diagnosis codes: 5400 AC APPEND W PERITONITIS 5401 ABSCESS OF APPENDIX Exclude cases: • transfer from a hospital (different facility) • transfer from a skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF) • transfer from another health care facility • MDC 14 (pregnancy, childbirth, and puerperium)
Denominator Statement	All non-maternal discharges of age 18 years and older in Metro Area1 or county with diagnosis code for appendicitis in any field.
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: Calendar year All non-maternal discharges of age 18 years and older in Metro Area1 or county with diagnosis code for appendicitis in any field. Include ICD-9-CM diagnosis codes (population at risk): 5400 AC APPEND W PERITONITIS 5401 ABSCESS OF APPENDIX 5409 ACUTE APPENDICITIS NOS 541 APPENDICITIS NOS
Exclusions	Not applicable.
Exclusion Details	Not applicable.
Risk Adjustment	risk adjustment method widely or commercially available The predicted value for each case is computed using a logistic regression model and covariates for gender and age in years (in 5-year age groups). The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate URL http://www.qualityindicators.ahrq.gov/downloads/pqi/PQI%20Risk%20Adjustment%20Tables%20(Version%204%202).pdf
Stratification	Observed rates may be stratified by gender, age (5-year age groups), race / ethnicity.
Type Score	Rate/proportion better quality = lower score
Algorithm	Each indicator is expressed as a rate, is defined as outcome of interest / population at risk or numerator / denominator. 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 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

	0273 Perforated appendix admission rate (PQI 2)
	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. 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/PQI_download.htm

	0265 Hospital transfer/admission
Steward	ASC Quality Collaboration | 5686 Escondida Blvd S | St. Petersburg | Florida | 33715
Description	Rate of ASC admissions requiring a hospital transfer or hospital admission upon discharge from the ASC
Type	Outcome
Data Source	Paper Records ASC medical records, as well as incident/occurrence reports, and variance reports may serve as data sources. No specific collection instrument is required although the ASC Quality Collaboration has developed a sample data collection instrument that may be used as desired. Facilities may use any collection instrument that allows tracking of all hospital transfers/admissions upon discharge. URL Not needed http://ascquality.org/documents/ASCQualityCollaborationImplementationGuide.pdf Not needed URL http://ascquality.org/documents/ASCQualityCollaborationImplementationGuide.pdf Not needed
Level	Facility
Setting	Ambulatory Care: Ambulatory Surgery Center (ASC)
Numerator Statement	Ambulatory surgical center (ASC) admissions requiring a hospital transfer or hospital admission upon discharge from the ASC.
Numerator Details	Time Window: In-facility, upon discharge from the ASC DEFINITIONS: Admission: completion of registration upon entry into the facility Hospital transfer or hospital admission: any transfer or admission from an ASC directly to an acute care hospital, including a hospital emergency room Discharge: occurs when the patient leaves the confines of the ASC
Denominator Statement	All ASC admissions
Denominator Categories	Female; Male All ages
Denominator Details	Time Window: In-facility, upon discharge from the ASC DEFINITIONS: Admission: completion of registration upon entry into the facility
Exclusions	None
Exclusion Details	Not applicable
Risk Adjustment	no risk adjustment necessary Not applicable
Stratification	Not stratified
Type Score	Rate/proportion better quality = lower score
Algorithm	The number of admissions experiencing a hospital transfer/admission upon discharge is divided by the number of ASC admissions during the reporting period, yielding the rate of hospital transfers/admissions upon discharge for the reporting period.

	1519 Statin therapy at discharge after lower extremity bypass (LEB)
Steward	Society for Vascular Surgery | 633 N. Saint Clair St., 22nd Floor | Chicago | Illinois | 60611
Description	Percentage of patients aged 18 years and older undergoing infrainguinal lower extremity bypass who are prescribed a statin medication at discharge. This measure is proposed for both hospitals and individual providers.
Type	Process

	1519 Statin therapy at discharge after lower extremity bypass (LEB)
Data Source	Electronic Clinical Data: Registry The Society for Vascular Surgery Vascular Quality Initiative Registry The Vascular Study Group of New England Registry Attachment Infra-Inguinal_Bypass_v1.9.xls Attachment LEB defs v.01.09.doc
Level	Clinician: Group/Practice, Clinician: Individual, Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Patients undergoing infrainguinal lower extremity bypass who are prescribed a statin medication at discharge.
Numerator Details	Time Window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (ie, reported as too low volume to report). ANY registry that includes anatomic details or CPT procedure codes is required to identify patients for numerator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE)are examples of registries capture detailed anatomic information, but the measure is not limited to these registries. Infrainguinal lower extremity bypass is defined as a bypass beginning at or below the external iliac artery and extending into the ipsilateral leg. It includes procedures with CPT codes 35656, 35556, 35583, 35666, 35566, 35585, 35671, 35571, 35587. The numerator is calculated as the number of patients age 18 and over undergoing such a procedure who are prescribed a statin medication at the time of discharge, which is also captured in the above registries.
Denominator Statement	All patients aged 18 years and older undergoing lower extremity bypass as defined above who are discharged alive, excluding those patients who are intolerant to statins.
Denominator Categories	Female; Male 18 years or older
Denominator Details	Time Window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (ie, reported as too low volume to report). ANY registry that includes anatomic details or CPT procedure codes is required to identify patients for denominator inclusion. The Society for Vascular Surgery Vascular Quality Initiative and the Vascular Study Group of New England are examples of registries that capture detailed anatomic information, but the measure is not limited to these registries. Infrainguinal lower extremity bypass is defined as a bypass beginning at or below the external iliac artery and extending into the ipsilateral leg. It includes procedures with CPT codes 35656, 35556, 35583, 35666, 35566, 35585, 35671, 35571, 35587. Only patients who are discharged alive are included in the denominator, and patients who are intolerant to statins are excluded, as described below.
Exclusions	Chart documentation that patient was not an eligible candidate for statin therapy due to known drug intolerance, or patient died before discharge.
Exclusion Details	Chart documentation that patient was not an eligible candidate for statin therapy due to known drug intolerance, or patient died before discharge. These data are captured in the SVS VQI and VSGNE registries.
Risk Adjustment	no risk adjustment necessary NA
Stratification	Not required
Type Score	Rate/proportion better quality = higher score
Algorithm	All patients age 18 and older undergoing infrainguinal LEB who were prescribed statin at discharge divided by (all patients over 18 undergoing infrainguinal LEB minus those intolerant to statins minus those who died before discharge).

	0365 Pancreatic resection mortality rate (IQI 9) (risk adjusted)
Steward	Agency for Healthcare Research and Quality
Description	Percentage of adult hospital discharges with procedure code of pancreatic resection with an in-hospital death, stratified by benign and malignant disease.
Type	Outcome
Data Source	Administrative claims

	0365 Pancreatic resection mortality rate (IQI 9) (risk adjusted)
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	In-hospital deaths among cases meeting the inclusion and exclusion rules for the denominator.
Numerator Details	Time Window: Time window can be determined by user, but is generally a calendar year. Note the volume-outcome relationship is based on volume over a one year time period. In-hospital deaths (DISP=20)
Denominator Statement	Hospital discharges, age 18 years and older, with an ICD-9-CM pancreatic resection procedure code in any field, stratified by benign and malignant disease.
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: Time window can be determined by user, but is generally a calendar year. Note the volume-outcome relationship is based on volume over a one year time period. ICD-9-CM pancreatic resection procedure codes: 526 TOTAL PANCREATECTOMY 527 RADICAL PANCREATICODUODENECT 52.51 Proximal pancreatectomy 52.52 Distal pancreatectomy 52.53 Radical subtotal pancreatectomy 52.59 Other partial pancreatectomy
Exclusions	Exclude cases: • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium) ICD-9-CM codes: 577.0 Acute pancreatitis
Exclusion Details	Exclude cases: • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium) ICD-9-CM codes: 577.0 Acute pancreatitis
Risk Adjustment	Risk adjustment method widely or commercially available The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age in years (in 5-year age groups), All Patient Refined-Diagnosis Related Group (APR-DRG) and APR-DRG risk-of-mortality subclass. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2008 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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

	0365 Pancreatic resection mortality rate (IQI 9) (risk adjusted)
	the reference population rate. Specific covariates included in the model for this indicator: Intercept Sex Female Age 65 to 74 Age 75+ APR-DRG '2603' to '2604' APR-DRG '2201' to '2202' APR-DRG '2203' to '2204' MDC 7 MDC Other WHIPPLE Whipple Procedure Note: APR-DRG 260 is Major Pancreas, Liver & Shunt Procedures; APR-DRG 220 is Major Stomach, Esophageal & Duodenal Procedures. MDC 7 is Diseases & Disorders of the Hepatobiliary System & Pancreas. http://qualityindicators.ahrq.gov/Downloads/Software/SAS/V43/Risk%20Adjustment%20Tables%20IQI%204.3.pdf
Stratification	Malignant Disease: ICD-9-CM pancreatic cancer diagnosis codes: 1520 MALIGNANT NEOPL DUODENUM 1561 MAL NEO EXTRAHEPAT DUCTS 1562 MAL NEO AMPULLA OF VATER 1570 MAL NEO PANCREAS HEAD 1571 MAL NEO PANCREAS BODY 1572 MAL NEO PANCREAS TAIL 1573 MAL NEO PANCREATIC DUCT 1574 MAL NEO ISLET LANGERHANS 1578 MALIG NEO PANCREAS NEC 1579 MALIG NEO PANCREAS NOS Benign Disease: All other cases
Type Score	Rate/proportion Better quality= Higher score
Algorithm	Each indicator is expressed as a rate, defined as outcome of interest / population at risk or numerator / denominator. The AHRQ Quality Indicators (AHRQ QI) software performs a number of steps to produce the rates. 1) Discharge-level data is used to identify 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 records. 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 level. 5) Calculate risk-adjusted rate. Use the indirect standardization to account for case-mix. 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.

	0366 Pancreatic resection volume (IQI 2)
Steward	Agency for Healthcare Research and Quality

	0366 Pancreatic resection volume (IQI 2)
Description	Number of adult hospital discharges with procedure for pancreatic resection, stratified by benign and malignant disease.
Type	Structure
Data Source	Administrative claims
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Hospital discharges, age 18 years and older, with ICD-9-CM codes for pancreatic resection procedure, stratified by benign and malignant disease.
Numerator Details	Time Window: Time window can be determined by user, but is generally a calendar year. Note the volume-outcome relationship is based on volume over a one year time period. ICD-9-CM pancreatic resection procedure codes: 526 TOTAL PANCREATECTOMY 527 RADICAL PANCREATICODUODENECT 52.51 Proximal pancreatectomy 52.52 Distal pancreatectomy 52.53 Radical subtotal pancreatectomy 52.59 Other partial pancreatectomy Exclude cases: -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) ICD-9-CM codes: 577.0 Acute pancreatitis
Denominator Statement	N/A
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: N/A N/A
Exclusions	N/A
Exclusion Details	N/A
Risk Adjustment	No risk adjustment necessary
Stratification	Malignant Disease: ICD-9-CM pancreatic cancer diagnosis codes: 1520 MALIGNANT NEOPL DUODENUM 1561 MAL NEO EXTRAHEPAT DUCTS 1562 MAL NEO AMPULLA OF VATER

	0366 Pancreatic resection volume (IQI 2)
	1570 MAL NEO PANCREAS HEAD 1571 MAL NEO PANCREAS BODY 1572 MAL NEO PANCREAS TAIL 1573 MAL NEO PANCREATIC DUCT 1574 MAL NEO ISLET LANGERHANS 1578 MALIG NEO PANCREAS NEC 1579 MALIG NEO PANCREAS NOS Benign Disease: All other cases
Type Score	Count
Algorithm	The volume is the count of the number of discharges with a procedure for pancreatic resection per hospital.

	0357 Abdominal aortic aneurysm (AAA) repair volume (IQI 4)
Steward	Agency for Healthcare Research and Quality
Description	Count of adult hospital discharges in a one-year time period with a procedure code of AAA repair.
Type	Structure
Data Source	Administrative claims
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Discharges, age 18 years and older, with an abdominal aortic aneurysm (AAA) repair procedure and a principal or secondary diagnosis of AAA
Numerator Details	Time Window: Time window can be determined by user, but is generally a calendar year. Note the volume-outcome estimates are based on one year of data. ICD-9-CM AAA procedure codes: 3834 AORTA RESECTION & ANAST 3844 RESECT ABDM AORTA W REPL 3864 EXCISION OF AORTA 3971 ENDO IMPLANT OF GRAFT IN AORTA ICD-9-CM AAA diagnosis codes: 4413 RUPT ABD AORTIC ANEURYSM 4414 ABDOM AORTIC ANEURYSM
Denominator Statement	N/A
Denominator Categories	Female; Male 18 and older
Denominator	Time Window: N/A

	0357 Abdominal aortic aneurysm (AAA) repair volume (IQI 4)
Details	N/A
Exclusions	N/A
Exclusion Details	N/A
Risk Adjustment	No risk adjustment necessary
Stratification	/* AAA Repair */ /* ICD-9-CM Procedure Codes: */ /* OPEN */; ´3834´ = ´1´ /* AORTA RESECTION & ANAST */ ´3844´ = ´1´ /* RESECT ABDM AORTA W REPL */ ´3864´ = ´1´ /* EXCISION OF AORTA */ /* ENDOVASCULAR */; ´3971´ = ´1´ /* ENDO IMPL GRFT ABD AORTA */ /* Include Only: AAA */ /* ICD-9-CM Diagnosis Codes: */ /* RUPTURED */; ´4413 ´ = ´1´ /* RUPT ABD AORTIC ANEURYSM */ /* UNRUPTURED */; ´4414 ´ = ´1´ /* ABDOM AORTIC ANEURYSM */
Type Score	Count
Algorithm	The volume is the number of discharges with a diagnosis of, and a procedure for AAA. There are four volume strata: open vs. endovascular, and ruptured vs. un-ruptured.

	0359 Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11) (risk adjusted)
Steward	Agency for Healthcare Research and Quality
Description	Percent of adult hospital discharges in a one-year time period with a procedure code of AAA repair and a diagnosis of AAA with an in-hospital death.
Type	Outcome
Data Source	Administrative claims
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.
Numerator Details	Time Window: Time window can be determined by user, but is generally a calendar year. Note that the reliability weights are calculated on one year of data. Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.
Denominator Statement	Discharges, age 18 years and older, with ICD-9-CM AAA repair code procedure and a diagnosis of AAA in any field. The denominator may be stratified by open vs. endovascular procedures, and ruptured vs. un-ruptured AAA.
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: Time window can be determined by user, but is generally a calendar year. Note that the reliability weights are calculated on one year of data. Discharges, age 18 years and older, with ICD-9-CM AAA repair code procedure and a diagnosis of AAA in any field. ICD-9-CM AAA repair procedure codes: 3834 AORTA RESECTION & ANAST 3844

	0359 Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11) (risk adjusted)
	RESECT ABDM AORTA W REPL 3864 EXCISION OF AORTA 3971 ENDO IMPLANT OF GRAFT IN AORTA ICD-9-CM AAA diagnosis codes: 4413 RUPT ABD AORTIC ANEURYSM 4414 ABDOM AORTIC ANEURYSM
Exclusions	Exclude cases: • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium)
Exclusion Details	Exclude cases: • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium)
Risk Adjustment	Risk adjustment method widely or commercially available The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age in years (in 5-year age groups), All Patient Refined-Diagnosis Related Group (APR-DRG) and APR-DRG risk-of-mortality subclass. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2008 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges and 4,000 hospitals. 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. Risk adjustment factors: sex age 18-24; age 25-29; age 30-34; age 35-39; age 40-44; age 45-49; age 50-54; age 55-59; age 60-64; age 65-69; age 70-74; age 75-79; age 80-84; age 85+ ADRG 1731 (other vascular procedures-minor) ADRG 1732 (other vascular procedures-moderate) ADRG 1733 (other vascular procedures-major) ADRG 1734 (other vascular procedures-extreme) ADRG 1691 (major thoracic and abdominal vascular procedures-minor) ADRG 1692 (major thoracic and abdominal vascular procedures-moderate) ADRG 1693 (major thoracic and abdominal vascular procedures-major) ADRG 1694 (major thoracic and abdominal vascular procedures-extreme MDC 5 (Cardiovascular) Transfer-in status
Stratification	Gender, age (5-year age groups), race / ethnicity, primary payer, custom The stratification of the denominator for open vs. endovascular and ruptured vs. unruptured involves the following codes in the denominator specification: AAA Repair ICD-9-CM Procedure Codes: OPEN ´3834´ = ´1´ /* AORTA RESECTION & ANAST */ ´3844´ = ´1´ /* RESECT ABDM AORTA W REPL */

	0359 Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11) (risk adjusted)
	´3864´ = ´1´ /* EXCISION OF AORTA */ ENDOVASCULAR ´3971´ = ´1´ /* ENDO IMPL GRFT ABD AORTA */ AAA ICD-9-CM Diagnosis Codes: RUPTURED ´4413 ´ = ´1´ /* RUPT ABD AORTIC ANEURYSM */ UNRUPTURED ´4414 ´ = ´1´ /* ABDOM AORTIC ANEURYSM */
Type Score	Rate/proportion better quality = lower score
Algorithm	There are four rates calculated, one for each stratum (open vs. endovascular, ruptured vs. un-ruptured). Each stratum indicator is expressed as a rate, and is defined as outcome of interest / population at risk or numerator / denominator. The AHRQ Quality Indicators (AHRQ QI) software performs several steps to produce the rates. 1) Discharge-level data is used to identify inpatient records containing the outcome of interest and 2) the population at risk. For provider indicators, the population at risk is derived from hospital discharge records; 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 level. 5) Calculate risk-adjusted rate. Use the indirect standardization to account for case-mix. 6) Calculate smoothed rate. A multi-variate shrinkage factor is applied to the risk-adjusted rates. The shrinkage estimate reflects a reliability adjustment unique to each indicator and hospital, and takes into account both the signal (between provider variance) and noise (within provider variance) for the indicator in each stratum, but also the covariance with the indicators across stratum. The smoothed rate is a weighted average of the hospital- and stratum-specific risk-adjusted rate and the volume- and stratum-specific risk-adjusted rate, where the weight is the multi-variate shrinkage factor; 7) Calculate combined rate across stratum. The overall rate is a weighted average of the stratum-specific rates. The "disease" weights are the relative frequency of ruptured and un-ruptured cases in the reference population. The "procedure" weights are the relative frequency of open and endovascular cases in the hospital. The stratum weight is the disease weight multiplied by the procedure weight and the sum of weights across stratum is normalized to 1.0 Additional information on calculation algorithms and specifications can be found at http://qualityindicators.ahrq.gov/Downloads/Resources/Publications/2011/QI%20Empirical%20Methods%2005-03-11.pdf

	1523 In-hospital mortality following elective open repair of AAAs
Steward	Society for Vascular Surgery
Description	Percentage of aymptomatic patients undergoing open repair of abdominal aortic aneurysms (AAA)who die while in hospital. This measure is proposed for both hospitals and individual providers.
Type	Outcome
Data Source	Electronic Clinical Data : Registry
Level	Clinician: Individual, Group/Practice; Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Mortality following elective open repair of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs
Numerator Details	Time Window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (ie, reported as too low volume to report). ANY registry that includes hospitalization details, AAA diameter and discharge status is required to identify patients for numerator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such information, but the measure is not limited to these registries. Patients who died in hospital following elective open infrarenal AAA repair if their aneurysm was asymptomatic (< 6cm dia in men, <5.5 cm dia in women, judged by preoperative imaging (CT, MR or ultrasound)).
Denominator	All elective open repairs of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs

	1523 In-hospital mortality following elective open repair of AAAs
Statement	
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (ie, reported as too low volume to report). ANY registry that includes hospitalization details, AAA diameter and discharge status is required to identify patients for denominator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such information, but the measure is not limited to these registries. Patients who underwent elective open AAA repair are included if their aneurysm was asymptomatic (< 6cm dia in men, <5.5 cm dia in women, judged by preoperative imaging(CT, MR or ultrasound)).
Exclusions	> 6 cm minor diameter - men > 5.5 cm minor diameter - women Symptomatic AAAs that required urgent/emergent (non-elective) repair
Exclusion Details	Patients undergoing non-elective open repair of symptomatic AAAs or those with AAAs larger than the diameters noted above.
Risk Adjustment	No risk adjustment necessary
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	Identify denominator, exclude non-elective repair of symptomatic or ruptured patients and men with AAA >6 cm, and women with AAA >5.5, find number of deaths Outcome = deaths/ # cases

	1534 In-hospital mortality following elective EVAR of AAAs
Steward	Society for Vascular Surgery
Description	Percentage of patients undergoing elective endovascular repair of asymptomatic abdominal aortic aneurysms (AAA) who die while in hospital. This measure is proposed for both hospitals and individual providers.
Type	Outcome
Data Source	Electronic Clinical Data : Registry
Level	Facility; Clinician: Individual, Group/Practice
Setting	Hospital/Acute Care Facility
Numerator Statement	Mortality following elective endovascular AAA repair of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs
Numerator Details	Time Window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (ie, reported as too low volume to report). ANY registry that includes hospitalization details, AAA diameter and discharge status is required to identify patients for numerator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such information, but the measure is not limited to these registries. Patients who died in hospital following elective endovascular infrarenal AAA repair if their aneurysm was asymptomatic (< 6cm dia in men, <5.5 cm dia in women, judged by preoperative imaging (CT, MR or ultrasound)).
Denominator Statement	All elective endovascular repairs of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs
Denominator Categories	Female; Male 18 and older
Denominator	Time Window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed

	1534 In-hospital mortality following elective EVAR of AAAs
Details	for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (ie, reported as too low volume to report). ANY registry that includes hospitalization details, AAA diameter and discharge status is required to identify patients for denominator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such information, but the measure is not limited to these registries. Patients who died in hospital following elective endovascular infrarenal AAA repair if their aneurysm was asymptomatic (< 6cm dia in men, <5.5 cm dia in women, judged by preoperative imaging (CT, MR or ultrasound)).
Exclusions	> 6 cm diameter - men > 5.5 cm diameter – women Symptomatic AAAs that required urgent/emergent (non-elective) repair
Exclusion Details	Patients undergoing non-elective open repair of symptomatic AAAs or those with AAAs larger than the diameters noted above.
Risk Adjustment	No risk adjustment necessary
Stratification	N/A
Type Score	Rate/proportion better quality = lower score
Algorithm	Identify denominator, exclude non-elective repair of symptomatic or ruptured patients and men with AAA >6 cm, and women with AAA >5.5, find number of deaths Outcome = deaths/ # cases

	1540 Postoperative stroke or death in asymptomatic patients undergoing carotid endarterectomy
Steward	Society for Vascular Surgery | 633 N. Saint Clair St., 22nd Floor | Chicago | Illinois | 60611
Description	Percentage of patients age 18 or older without carotid territory neurologic or retinal symptoms within the one year immediately preceding carotid endarterectomy (CEA) who experience stroke or death following surgery while in the hospital. This measure is proposed for both hospitals and individual surgeons.
Type	Outcome
Data Source	Electronic Clinical Data : Registry Society for Vascular Surgery Vascular Quality Initiative Registry Vascular Study Group of New England Registry Attachment Carotid_Endarterectomy_CB_v1.9.xlsx Attachment CEA defs v.01.09.doc
Level	Clinician: Group/Practice, Clinician: Individual, Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Patients age 18 or older without preoperative carotid territory neurologic or retinal sympotoms within the one year immediately preceding CEA who experience stroke or death during their hospitalization following carotid endarterectomy
Numerator Details	Time Window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (ie, reported as too low volume to report). ANY registry that includes hospitalization details and symptom status within 120 days is required to identify patients for numerator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such information, but the measure is not limited to these registries. Patients who were asymptomatic within one year of the CEA(CPT code 37215) who died or experienced postoperative inhospital stroke are included.
Denominator Statement	Asymptomatic patients (based on NASCET criteria) on the within one year of CEA
Denominator Categories	Female; Male 18 years or older
Denominator Details	Time Window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting

	1540 Postoperative stroke or death in asymptomatic patients undergoing carotid endarterectomy
	of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (ie, reported as too low volume to report). ANY registry that includes hospitalization details and symptom status within 120 days is required to identify patients for denominator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such information, but the measure is not limited to these registries. Patients who were asymptomatic within one year of the CAS (CPT code 37215)are included.
Exclusions	Patients with neurologic symptoms within one year of surgery
Exclusion Details	Patients with NASCET criteria neurologic symptoms (transient ischemic attack, amaurosis, or stroke) within the one year immediately proceeding CEA
Risk Adjustment	no risk adjustment necessary See "Scientific Acceptablility" section for rationale
Stratification	Not required
Type Score	Rate/proportion better quality = lower score
Algorithm	Asymptomatic patients undergoing CEA who experience inhospital stroke or death/all asymptomatic patients undergoing CEA

	1543 Postoperative stroke or death in asymptomatic patients undergoing carotid artery stenting (CAS)
Steward	Society for Vascular Surgery | 633 N. Saint Clair St., 22nd Floor | Chicago | Illinois | 60611
Description	Percentage of patients 18 years of age or older without carotid territory neurologic or retinal symptoms within 120 days immediately proceeding carotid angioplasty and stent (CAS) placement who experience stroke or death during their hospitalization for this procedure. This measure is proposed for both hospitals and individual interventionalists.
Type	Outcome
Data Source	Electronic Clinical Data: Registry Society for Vascular Surgery Vascular Quality Initiative Registry Vascular Study Group of New England Registry Attachment Carotid_Artery_Stent_CB_v_1.9.xlsx Attachment CAS defs v.01.09.doc
Level	Clinician: Group/Practice, Clinician: Individual, Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Patients over age 18 without preoperative carotid territory neurologic or retinal sympotoms within one year of their procedure who experience stroke or death during their hospitalization following elective carotid artery angioplasty and stent placement
Numerator Details	Time Window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (ie, reported as too low volume to report). ANY registry that includes hospitalization details and symptom status within 120 days is required to identify patients for numerator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such information, but the measure is not limited to these registries. Patients who were asymptomatic within one year of the CAS (CPT code 37215) who died or had a stroke recorded in the registry during that admission.
Denominator Statement	Patients over age 18 without preoperative carotid territory neurologic or retinal symptoms within one year immediately preceding carotid artery stenting
Denominator Categories	Female; Male Over 18
Denominator Details	Time Window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (ie, reported as too low volume to report). ANY registry that includes hospitalization details and symptom status within one year is required to identify patients for

	1543 Postoperative stroke or death in asymptomatic patients undergoing carotid artery stenting (CAS)
	numerator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such information, but the measure is not limited to these registries. Patients who were asymptomatic within one year of the CAS (CPT code 37215) are included.
Exclusions	Exclude patients with neurologic symptoms within one year of procedure
Exclusion Details	Patients with NASCET criteria neurologic symptoms (transient ischemic attack, amaurosis, or stroke) within the one year immediately proceeding CAS
Risk Adjustment	no risk adjustment necessary See "Scientific Acceptablility" section for rationale
Stratification	Not required
Type Score	Rate/proportion better quality = lower score
Algorithm	Number of asymptomatic patients undergoing CAS who have in hospital stroke or death / Number of asymptomatic patients undergoing CAS

	0360 Esophageal resection mortality rate (IQI 8)
Steward	Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850
Description	Number of inpatient deaths per 100 discharges with a procedure for esophageal resection
Type	Outcome
Data Source	Electronic administrative data/claims URL http://www.qualityindicators.ahrq.gov/software.htm URL http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf
Level	Facility/Agency
Setting	Hospital
Numerator Statement	Number of deaths among cases meeting the inclusion and exclusion rules for the denominator.
Numerator Details	Time Window: Inpatient admission Discharge disposition of death (DISP=20)
Denominator Statement	Discharges, age 18 years and older, with ICD-9-CM esophageal resection procedure code and a diagnosis code of esophageal cancer in any field OR gastrectomy procedure code ONLY if accompanied by selected diagnosis codes.
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: User defined; usually a calendar year ICD-9-CM esophageal resection procedure codes: 424 ESOPHAGECTOMY 4240 ESOPHAGECTOMY NOS 4241 PARTIAL ESOPHAGECTOMY 4242 TOTAL ESOPHAGECTOMY 425 THORAC ESOPHAG ANAST 4251 THORAC ESOPHAGOESOPHAGOS 4252 THORAC ESOPHAGOGASTROST 4253 THORAC SM BOWEL INTERPOS 4254 THORAC ESOPHAGOENTER NEC 4255 THORAC LG BOWEL INTERPOS 4256 THORAC ESOPHAGOCOLOS NEC 4258 THORAC INTERPOSITION NEC 4259 THORAC ESOPHAG ANAST NEC 426 STERN ESOPHAG ANAST 4261 STERN ESOPHAGOESOPHAGOST 4262 STERN ESOPHAGOGASTROSTOM 4263 STERN SM BOWEL INTERPOS 4264 STERN ESOPHAGOENTER NEC 4265 STERN LG BOWEL INTERPOS

	0360 Esophageal resection mortality rate (IQI 8)
	4266 STERN ESOPHAGOCOLOS NEC 4268 STERN INTERPOSITION NEC 4269 STERN ESOPHAG ANAST NEC ONLY if selected diagnosis codes: esophageal cancer (see below) gastrointestinal-related cancer (see below) OR: ICD-9-CM gastrectomy procedure code: 4399 OTHER TOTAL GASTRECTOMY - ONLY if selected diagnosis codes: esophageal cancer (see below) Esophageal cancer: 1500 MALIGNANT NEOPLASM OF ESOPHAGUS, CERVICAL 1501 MALIGNANT NEOPLASM OF ESOPHAGUS, THORACIC 1502 MALIGNANT NEOPLASM OF ESOPHAGUS, ABDOMINAL 1503 MALIGNANT NEOPLASM OF ESOPHAGUS, UPPER THIRD OF 1504 MALIGNANT NEOPLASM OF ESOPHAGUS, MIDDLE THIRD OF 1505 MALIGNANT NEOPLASM OF ESOPHAGUS, LOWER THIRD OF 1508 MALIGNANT NEOPLASM OF ESOPHAGUS, OTHER SPECIFIED PART 1509 MALIGNANT NEOPLASM OF ESOPHAGUS, UNSPECIFIED Gastrointestinal cancer 1510 MALIGNANT NEOPLASM OF STOMACH, CARDIA 1978 SECONDARY MALIGNANT NEOPLASM OF RESPIRATORY AND DIGESTIVE SYSTEMS, OTHER DIGESTIVE ORGANS AND SPLEEN 2301 CARCINOMA IN SITU OF DIGESTIVE ORGANS, ESOPHAGUS 2355 NEOPLASM OF UNCERTAIN BEHAVIOR OF DIGESTIVE AND RESPIRATORY SYSTEMS, OTHER AND UNSPECIFIED DIGESTIVE ORGANS
Exclusions	Exclude discharges with pregnancy, discharge to a short term hospital or missing information for discharge disposition, age or sex.
Exclusion Details	Exclude cases: • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium)
Risk Adjustment	case-mix adjustment 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 used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007, a database consisting of approximately 35 million discharges from 43 states. 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. age 18-24; age 25-29; age 30-34; age 35-39; age 40-44; age 45-49; age 50-54; age 55-59; age 60-64 (omitted); age 65-69; age 70-74; age 75-79; age 80-84; age 85+ each age category*female APRDRG 2201-MAJOR STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES (MINOR) APRDRG 2202-MAJOR STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES (MODERATE) ADRG 2203-MAJOR STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES (MAJOR) APRDRG 2204-MAJOR STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES (EXTREME) ADRG 9999 (OTHER) URL http://www.qualityindicators.ahrq.gov/downloads/iqi/IQI%20Risk%20Adjustment%20Tables%20(Version%204%202)%20wo%20APR-DRG.pdf
Stratification	Observed rates may be stratified by age group, race/ethnicity categories, payer categories and sex.
Type Score	Rate/proportion better quality = lower score

	0360 Esophageal resection mortality rate (IQI 8)
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 mark inpatient records containing outcomes of interest. 2) Identify populations at risk. For provider IQIs populations at risk are derived from hospital discharge records. 3) Calculate observed rates. Using output data from steps 1 and 2, IQI rates are calculated for user-specified combinations of stratifiers. 4) Risk adjust the IQI rates. Regression coefficients from a reference population database are applied to the observed rates in the risk-adjustment process. The risk-adjusted rates will then reflect the age and APR-DRG distribution of data in the reference population. 5) Create multivariate signal extraction (MSX) smoothed rates. Shrinkage factors are applied to the risk-adjusted rates for each IQI in the MSX process. For each IQI, the shrinkage estimate reflects a reliability adjustment unique to each indicator. Full information on IQI algorithms and specification can be found at http://qualityindicators.ahrq.gov/iqi_download.htm.

	0361 Esophageal resection volume (IQI 1)
Steward	Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850
Description	Number of discharges with a procedure for esophogeal resection
Type	Structure/management
Data Source	Electronic administrative data/claims URL http://www.qualityindicators.ahrq.gov/software.htm URL http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf
Level	Facility/Agency
Setting	Hospital
Numerator Statement	Discharges, age 18 years and older, with ICD-9-CM code for esophageal resection in any procedure field OR gastrectomy procedure code ONLY if accompanied by selected diagnosis codes.
Numerator Details	Time Window: Time period is user defined. Users of the measure typically use a 12 month time period. CD-9-CM esophageal resection procedure codes: 424 ESOPHAGECTOMY 4240 ESOPHAGECTOMY NOS 4241 PARTIAL ESOPHAGECTOMY 4242 TOTAL ESOPHAGECTOMY 425 THORAC ESOPHAG ANAST 4251 THORAC ESOPHAGOESOPHAGOS 4252 THORAC ESOPHAGOGASTROST 4253 THORAC SM BOWEL INTERPOS 4254 THORAC ESOPHAGOENTER NEC 4255 THORAC LG BOWEL INTERPOS 4256 THORAC ESOPHAGOCOLOS NEC 4258 THORAC INTERPOSITION NEC 4259 THORAC ESOPHAG ANAST NEC 426 STERN ESOPHAG ANAST 4261 STERN ESOPHAGOESOPHAGOST 4262 STERN ESOPHAGOGASTROSTOM 4263 STERN SM BOWEL INTERPOS 4264 STERN ESOPHAGOENTER NEC 4265 STERN LG BOWEL INTERPOS 4266 STERN ESOPHAGOCOLOS NEC 4268 STERN INTERPOSITION NEC 4269 STERN ESOPHAG ANAST NEC OR ICD-9-CM gastrectomy procedure code: 4399 OTHER TOTAL GASTRECTOMY ONLY if accompanied by selected diagnosis codes 1500 MALIGNANT NEOPLASM OF ESOPHAGUS, CERVICAL 1501 MALIGNANT NEOPLASM OF ESOPHAGUS, THORACIC 1502 MALIGNANT NEOPLASM OF ESOPHAGUS, ABDOMINAL

	0361 Esophageal resection volume (IQI 1)
	1503 MALIGNANT NEOPLASM OF ESOPHAGUS, UPPER THIRD OF 1504 MALIGNANT NEOPLASM OF ESOPHAGUS, MIDDLE THIRD OF 1505 MALIGNANT NEOPLASM OF ESOPHAGUS, LOWER THIRD OF 1508 MALIGNANT NEOPLASM OF ESOPHAGUS, OTHER SPECIFIED PART 1509 MALIGNANT NEOPLASM OF ESOPHAGUS, UNSPECIFIED Exclude cases: MDC 14 (pregnancy, childbirth, and puerperium)
Denominator Statement	Not applicable
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: Not applicable Not Applicable
Exclusions	Not Applicable
Exclusion Details	Not Applicable
Risk Adjustment	no risk adjustment necessary Not applicable
Stratification	Not Applicable
Type Score	Count better quality = higher score
Algorithm	The volume is the number of discharges with a procedure for esophageal resection

	0339 RACHS-1 pediatric heart surgery mortality
Steward	Agency for Healthcare Research and Quality
Description	Risk-adjusted rate of in-hospital death for pediatric cases undergoing surgery for congenital heart disease, along with ratio of observed to expected in-hospital mortality rates.
Type	Outcome
Data Source	Administrative claims The data source is hospital discharge data such as the HCUP State Inpatient Databases (SID) or equivalent using UB-04 coding standards. The data collection instrument is public-use AHRQ QI software available in SAS or Windows versions. URL None http://qualityindicators.ahrq.gov/Software/Default.aspx None URL http://qualityindicators.ahrq.gov/Downloads/Software/WinQI/V42/AHRQ_QI_Windows_Software_Documentation_V41a.pdf None
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator with a code of pediatric heart surgery with ICD-9-CM diagnosis of congenital heart disease in any field.
Numerator Details	Time Window: Time window can be determined by user, but is generally a calendar year. Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator with a code of pediatric heart surgery with ICD-9-CM diagnosis of congenital heart disease in any field.
Denominator Statement	Discharges under age 18 with ICD-9-CM procedure codes for congenital heart disease (1P) in any field or non-specific heart surgery (2P) in any field with ICD-9-CM diagnosis of congenital heart disease (2D) in any field.
Denominator Categories	Female; Male Age less than 18 years
Denominator Details	Time Window: Time window can be determined by user, but is generally a calendar year. Discharges under age 18 with ICD-9-CM procedure codes for congenital heart disease (1P) or non-specific heart surgery (2P) with ICD-9-CM diagnosis of congenital heart disease (2D) in any field. Congenital heart disease procedures (1P): 3500

	0339 RACHS-1 pediatric heart surgery mortality
	CLOSED VALVOTOMY NOS 3501 CLOSED AORTIC VALVOTOMY 3502 CLOSED MITRAL VALVOTOMY 3503 CLOSED PULMON VALVOTOMY 3504 CLOSED TRICUSP VALVOTOMY 3510 OPEN VALVULOPLASTY NOS 3511 OPN AORTIC VALVULOPLASTY 3512 OPN MITRAL VALVULOPLASTY 3513 OPN PULMON VALVULOPLASTY 3514 OPN TRICUS VALVULOPLASTY 3520 REPLACE HEART VALVE NOS 3521 REPLACE AORT VALV-TISSUE 3522 REPLACE AORTIC VALVE NEC 3523 REPLACE MITR VALV-TISSUE 3524 REPLACE MITRAL VALVE NEC 3525 REPLACE PULM VALV-TISSUE 3526 REPLACE PULMON VALVE NEC 3527 REPLACE TRIC VALV-TISSUE 3528 REPLACE TRICUSP VALV NEC 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

	0339 RACHS-1 pediatric heart surgery mortality
	3551 PROS REP ATRIAL DEF-OPN 3552 PROS REPAIR ATRIA DEF-CL 3553 PROST REPAIR VENTRIC DEF 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 OP ON HRT VALVES 3699 OTHER OPERATIONS ON VESSEL OF HEART 3733 EXCISION OR DESTRUCTION OF OTHER LESION OR TISSUE OF HEART 3736 EXCISION OR DESTRUCTION OF LEFT ATRIAL APPENDAGE (LAA) OCT08- 375 HEART TRANSPLANTATION (invalid as of OCT03) 3751

	0339 RACHS-1 pediatric heart surgery mortality
	HEART TRANSPLANTATION OCT03- 3752 IMPLANT TOT REP HRT SYS OCT03- 390 SYSTEMIC-PULM ART SHUNT 3921 CAVAL-PULMON ART ANASTOM Non-specific cardiac procedures (2P): 3834 RESECTION OF ABDOMINAL AORTA WITH ANASTOMOSIS 3835 THOR VESSEL RESECT/ANAST 3844 RESECTION OF ABDOMINAL AORTA WITH REPLACEMENT 3845 RESECT THORAC VES W REPL 3864 OTHER EXCISION OF ABDOMINAL AORTA 3865 OTHER EXCISION OF THORACIC VESSEL 3884 OTHER SURGICAL OCCLUSION OF ABDOMINAL AORTA 3885 OCCLUDE THORACIC VES NEC 3949 OTHER REVISION OF VASCULAR PROCEDURE 3956 REPAIR OF BLOOD VESSEL WITH TISSUE PATCH GRAFT 3957 REPAIR OF BLOOD VESSEL WITH SYNTHETIC PATCH GRAFT 3958 REPAIR OF BLOOD VESSEL WITH UNSPECIFIED TYPE OF PATCH GRAFT 3959 REPAIR OF VESSEL NEC Congenital heart disease diagnoses (2D): 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

	0339 RACHS-1 pediatric heart surgery mortality
	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 7469 CONG HEART ANOMALY NOS 7470 PATENT DUCTUS ARTERIOSUS 74710 COARCTATION OF AORTA 74711 INTERRUPT OF AORTIC ARCH 74720

	0339 RACHS-1 pediatric heart surgery mortality
	CONG ANOM OF AORTA NOS 74721 ANOMALIES OF AORTIC ARCH 74722 AORTIC ATRESIA/STENOSIS 74729 CONG ANOM OF AORTA NEC 7473 PULMONARY ARTERY ANOM 74740 GREAT VEIN ANOMALY NOS 74741 TOT ANOM PULM VEN CONNEC 74742 PART ANOM PULM VEN CONN 74749 GREAT VEIN ANOMALY NEC
Exclusions	Exclude cases: • MDC 14 (pregnancy, childbirth and pueperium) • with transcatheter interventions (either 3AP, 3BP, 3CP, 3DP, 3EP with 3D, or 3FP) as single cardiac procedures, performed without bypass (5P) but with catheterization (6P) • with septal defects (4P) as single cardiac procedures without bypass (5P) • with diagnosis of ASD or VSD (5D) with PDA as the only cardiac procedure • heart transplant (7P) • premature infants (4D) with PDA closure (3D and 3EP) as only cardiac procedure; • age less than or equal to 30 days with PDA closure as only cardiac procedure • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • neonates with birth weight less than 500 grams (Birth Weight Category 1)
Exclusion Details	Exclude cases: • MDC 14 (pregnancy, childbirth and pueperium) • with transcatheter interventions (either 3AP, 3BP, 3CP, 3DP, 3EP with 3D, or 3FP) as single cardiac procedures, performed without bypass (5P) but with catheterization (6P) • with septal defects (4P) as single cardiac procedures without bypass (5P) • with diagnosis of ASD or VSD (5D) with PDA as the only cardiac procedure • heart transplant (7P) • premature infants (4D) with PDA closure (3D and 3EP) as only cardiac procedure; • age less than or equal to 30 days with PDA closure as only cardiac procedure • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • neonates with birth weight less than 500 grams (Birth Weight Category 1) A neonate is defined as any discharge with age in days at admission between zero and 28 days (inclusive). If age in days is missing, then a neonate is defined as an admission type of newborn (SID ATYPE=4) OR an ICD-9-CM code for either in-hospital live birth or neonate observation and evaluation. Newborn in Hospital Live Birth Codes V3000 SINGLE LB IN-HOSP W/O CS OCT05- V3001 SINGLE LB IN-HOSP W CS OCT05- V3100 TWIN-MATE LB-HOSP W/O CS OCT05- V3101 TWIN-MATE LB-IN HOS W CS OCT05-

	0339 RACHS-1 pediatric heart surgery mortality
	V3200 TWIN-MATE SB-HOSP W/O CS OCT05- V3201 TWIN-MATE SB-HOSP W CS OCT05- V3300 TWIN-NOS-IN HOSP W/O CS OCT05- V3301 TWIN-NOS-IN HOSP W CS OCT05- V3400 OTH MULT LB-HOSP W/O CS OCT05- V3401 OTH MULT LB-IN HOSP W CS OCT05- V3500 OTH MULT SB-HOSP W/O CS OCT05- V3501 OTH MULT SB-IN HOSP W CS OCT05- V3600 MULT LB/SB-IN HOS W/O CS OCT05- V3601 MULT LB/SB-IN HOSP W CS OCT05- V3700 MULT BRTH NOS-HOS W/O CS OCT05- V3701 MULT BIRTH NOS-HOSP W CS OCT05- V3900 LIVEBORN NOS-HOSP W/O CS OCT05- V3901 LIVEBORN NOS-HOSP W CS OCT05- Neonate Observation and Evaluation codes: V290 NB OBSRV SUSPCT INFECT V291 NB OBSRV SUSPCT NEURLGCL V292 OBSRV NB SUSPC RESP COND V293 NB OBS GENETC/METABL CND V298 NB OBSRV OTH SUSPCT COND V299 NB OBSRV UNSP SUSPCT CND Less than 500 grams - Birth Weight Category 1 76401 LIGHT-FOR-DATES <500G 76411 LT-FOR-DATE W/MAL <500G 76421 FETAL MALNUTRITION <500G 76491 FET GROWTH RETARD <500G 76501 EXTREME IMMATUR <500G 76511 PRETERM NEC <500G V2131

	0339 RACHS-1 pediatric heart surgery mortality
	LOW BIRTHWT STATUS <500G Closed heart valvotomy (3AP): 3500 CLOSED HEART VALVOTOMY, UNSPECIFIED VALUE 3501 CLOSED HEART VALVOTOMY, AORTIC VALUE 3502 CLOSED HEART VALVOTOMY, MITRAL VALUE 3503 CLOSED HEART VALVOTOMY, PULMONARY VALUE 3504 CLOSED HEART VALVOTOMY, TRICUSPID VALUE Atrial septal enlargement (3BP) 3541 ENLARGEMENT OF EXISTING ATRIAL SEPTAL DEFECT 3542 CREATION OF SEPTAL DEFECT IN HEART Atrial septal defect repair (3CP) 3551 REPAIR OF ATIAL SEPTAL DEFECT WITH PROSTHESIS, OPEN TECHNIQUE 3571 OTHER AND UNSPECIFIED REPAIR OF ATRIAL SEPTAL DEFECT Ventricular septal defect repair (3DP): 3553 REPAIR OF VENTRICULAR SEPTAL DEFECT WITH PROSTHESIS 3572 OTHER AND UNSPECIFIED REPAIR OF VENTRICULAR SEPTAL DEFECT Occlusion of thoracic vessel (3EP): 3885 OCCLUDE THORACIC VES NEC PDA closure diagnosis code (3D): 7470 PATENT DUCTUS ARTERIOSUS Other surgical occlusion (3FP): 3884 OTHER SURGICAL OCCLUSION OF AORTA, ABDOMINAL 3885 OTHER SURGICAL OCCLUSION OF THORACIC VESSEL 3959 OTHER REPAIR OF VESSEL Atrial septal defect repair and enlargement (4P): 3541 ENLARGE EXISTING SEP DEF 3552 PROS REPAIR ATRIA DEF-CL Extracorporeal circulation (5P): 3961 EXTRACORPOREAL CIRCULAT Atrial Septal Defect or Ventricular Septal Defect diagnosis (5D): 7454 VENTRICULAR SEPT DEFECT 7455 SECUNDUM ATRIAL SEPT DEF Catheterization (6P): 3721

	0339 RACHS-1 pediatric heart surgery mortality
	RT HEART CARDIAC CATH 3722 LEFT HEART CARDIAC CATH 3723 RT/LEFT HEART CARD CATH 8842 CONTRAST AORTOGRAM 8843 CONTR PULMON ARTERIOGRAM 8844 ARTERIOGRAPHY OF OTHER INTRATHORACIC VESSELS 8850 ANGIOCARDIOGRAPHY, NOT OTHERWISE SPECIFIED 8851 ANGIOCARDIOGRAPHY OF VENAE CAVAE 8852 ANGIOCARDIOGRAPHY OF RIGHT HEART STRUCTURES 8853 ANGIOCARDIOGRAPHY OF LEFT HEART STRUCTURES 8854 COMBINED RIGHT AND LEFT HEART ANGIOCARDIOGRAPHY 8855 CORONARY ARTERIOGRAPHY USING A SINGLE CATHETER 8856 CORONARY ARTERIOGRAPHY USING TWO CATHETERS 8857 OTHER AND UNSPECIFIED CORONARY ARTERIOGRAPHY 8858 NEGATIVE-CONTRAST CARDIAC ROENTGENOGRAPHY Heart Transplant (7P): 375 HEART TRANSPLANTATION (invalid as of OCT03) 3751 HEART TRANSPLANTATION OCT03- 3752 IMPLANT TOT REP HRT SYS OCT03- Premature infants (4D): 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

	0339 RACHS-1 pediatric heart surgery mortality
	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	risk adjustment method widely or commercially available PDI: The predicted value for each case is computed using a logistic regression with Generalized Estimating Equations (GEE) to account for within hospital correlation containing RACHS-1 risk category; age category (<= 28 days, 29 to 90 days, 91 days to 1 year, 1 to 17 years); birth weight <2500 grams; non-cardiac structural anomaly (modified CCS 217); admission transferred in; and combination of congenital heart surgery procedures performed during admission. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2008 (updated annually), a database consisting of 43 states and approximately 7 million pediatric discharges. 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 (standardized mortality ratio), multiplied by the reference population rate. The model includes additional covariates for RACHS-1 risk categories, and multiple congenital heart procedures during the admission. Required data elements: Age in days up to 364, then age years at admission; International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) principal and secondary diagnosis codes; admission type; admission source. Attachment Pediatric Heart Surgery (RACHS-1).docx
Stratification	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
Algorithm	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 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.

	0340 Pediatric heart surgery volume (PDI 7)
Steward	Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850
Description	Number of discharges with procedure for pediatric heart surgery
Type	Structure
Data Source	Administrative claims The data source is hospital discharge data such as the HCUP State Inpatient Databases (SID) or equivalent using UB-04 coding standards. The data collection instrument is public-use AHRQ QI software available in SAS or Windows versions. URL None http://www.qualityindicators.ahrq.gov/software.htm None URL http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf None
Level	Facility
Setting	Hospital/Acute Care Facility
Numerator Statement	Discharges under age 18 with ICD-9-CM procedure codes for either congenital heart disease (1P) in any field or non-specific heart surgery (2P) with ICD-9-CM diagnosis of congenital heart disease (2D) in any field.
Numerator Details	Time Window: Time window can be determined by user, but is generally a calendar year. Discharges under age 18 with ICD-9-CM procedure codes for either congenital heart disease (1P) or non-specific heart surgery (2P) with ICD-9-CM diagnosis of congenital heart disease (2D) in any field. Congenital heart disease procedures (1P): 3500 CLOSED VALVOTOMY NOS 3501 CLOSED AORTIC VALVOTOMY 3502 CLOSED MITRAL VALVOTOMY 3503 CLOSED PULMON VALVOTOMY 3504 CLOSED TRICUSP VALVOTOMY 3510 OPEN VALVULOPLASTY NOS 3511 OPN AORTIC VALVULOPLASTY 3512 OPN MITRAL VALVULOPLASTY 3513 OPN PULMON VALVULOPLASTY 3514 OPN TRICUS VALVULOPLASTY 3520 REPLACE HEART VALVE NOS 3521 REPLACE AORT VALV-TISSUE 3522 REPLACE AORTIC VALVE NEC 3523 REPLACE MITR VALV-TISSUE 3524 REPLACE MITRAL VALVE NEC 3525 REPLACE PULM VALV-TISSUE 3526 REPLACE PULMON VALVE NEC 3527 REPLACE TRIC VALV-TISSUE 3528

	0340 Pediatric heart surgery volume (PDI 7)
	REPLACE TRICUSP VALV NEC 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 PROST REPAIR VENTRIC DEF 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

	0340 Pediatric heart surgery volume (PDI 7)
	3593 CONDUIT LEFT VENTR-AORTA 3594 CONDUIT ARTIUM-PULM ART 3595 HEART REPAIR REVISION 3598 OTHER HEART SEPTA OPS 3599 OTHER OP ON HRT VALVES 3699 OTHER OPERATIONS ON VESSEL OF HEART 3733 EXCISION OR DESTRUCTION OF OTHER LESION OR TISSUE OF HEART 3736 EXCISION OR DESTRUCTION OF LEFT ATRIAL APPENDAGE (LAA) OCT08- 375 HEART TRANSPLANTATION (invalid as of OCT03) 3751 HEART TRANSPLANTATION OCT03- 3752 IMPLANT TOT REP HRT SYS OCT03- 390 SYSTEMIC-PULM ART SHUNT 3921 CAVAL-PULMON ART ANASTOM Non-specific cardiac procedures (2P): 3834 RESECTION OF ABDOMINAL AORTA WITH ANASTOMOSIS 3835 THOR VESSEL RESECT/ANAST 3844 RESECTION OF ABDOMINAL AORTA WITH REPLACEMENT 3845 RESECT THORAC VES W REPL 3864 OTHER EXCISION OF ABDOMINAL AORTA 3865 OTHER EXCISION OF THORACIC VESSEL 3884 OTHER SURGICAL OCCLUSION OF ABDOMINAL AORTA 3885 OCCLUDE THORACIC VES NEC 3949 OTHER REVISION OF VASCULAR PROCEDURE 3956 REPAIR OF BLOOD VESSEL WITH TISSUE PATCH GRAFT 3957 REPAIR OF BLOOD VESSEL WITH SYNTHETIC PATCH GRAFT 3958 REPAIR OF BLOOD VESSEL WITH UNSPECIFIED TYPE OF PATCH GRAFT 3959 REPAIR OF VESSEL NEC Congenital heart disease diagnoses (2D): 7450

	0340 Pediatric heart surgery volume (PDI 7)
	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 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

	0340 Pediatric heart surgery volume (PDI 7)
	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 74740 GREAT VEIN ANOMALY NOS 74741 TOT ANOM PULM VEN CONNEC 74742 PART ANOM PULM VEN CONN 74749 GREAT VEIN ANOMALY NEC Exclude cases: • MDC 14 (pregnancy, childbirth and pueperium) • with transcatheter interventions (either 3AP, 3BP, 3CP, 3DP, 3EP with 3D, or 3FP) as single cardiac procedures, performed without bypass (5P) but with catheterization (6P); • with septal defects (4P) as single cardiac procedures without bypass (5P) Transcatheter interventions procedure codes: Closed heart valvotomy (3AP): 3500 CLOSED HEART VALVOTOMY, UNSPECIFIED VALUE 3501 CLOSED HEART VALVOTOMY, AORTIC VALUE 3502 CLOSED HEART VALVOTOMY, MITRAL VALUE 3503 CLOSED HEART VALVOTOMY, PULMONARY VALUE 3504 CLOSED HEART VALVOTOMY, TRICUSPID VALUE Atrial septal enlargement (3BP): 3541

	0340 Pediatric heart surgery volume (PDI 7)
	ENLARGEMENT OF EXISTING ATRIAL SEPTAL DEFECT 3542 CREATION OF SEPTAL DEFECT IN HEART Atrial septal defect repair (3CP): 3551 REPAIR OF ATIAL SEPTAL DEFECT WITH PROSTHESIS, OPEN TECHNIQUE 3571 OTHER AND UNSPECIFIED REPAIR OF ATRIAL SEPTAL DEFECT Ventricular septal defect repair (3DP): 3553 REPAIR OF VENTRICULAR SEPTAL DEFECT WITH PROSTHESIS 3572 OTHER AND UNSPECIFIED REPAIR OF VENTRICULAR SEPTAL DEFECT Occlusion of thoracic vessel (3EP): 3885 OCCLUDE THORACIC VES NEC PDA closure diagnosis code (3D): 7470 PATENT DUCTUS ARTERIOSUS Other surgical occlusion (3FP): 3884 OTHER SURGICAL OCCLUSION OF AORTA, ABDOMINAL 3885 OTHER SURGICAL OCCLUSION OF THORACIC VESSEL 3959 OTHER REPAIR OF VESSEL Extracorporeal circulation (5P): 3961 EXTRACORPOREAL CIRCULAT Catheterization (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 ARTERIOGRAPHY OF OTHER INTRATHORACIC VESSELS 8850 ANGIOCARDIOGRAPHY, NOT OTHERWISE SPECIFIED 8851 ANGIOCARDIOGRAPHY OF VENAE CAVAE 8852 ANGIOCARDIOGRAPHY OF RIGHT HEART STRUCTURES 8853 ANGIOCARDIOGRAPHY OF LEFT HEART STRUCTURES 8854 COMBINED RIGHT AND LEFT HEART ANGIOCARDIOGRAPHY 8855 CORONARY ARTERIOGRAPHY USING A SINGLE CATHETER 8856

	0340 Pediatric heart surgery volume (PDI 7)
	CORONARY ARTERIOGRAPHY USING TWO CATHETERS 8857 OTHER AND UNSPECIFIED CORONARY ARTERIOGRAPHY 8858 NEGATIVE-CONTRAST CARDIAC ROENTGENOGRAPHY Atrial septal defect repair and enlargement (4P): 3541 ENLARGE EXISTING SEP DEF 3552 PROS REPAIR ATRIA DEF-CL
Denominator Statement	This measure does not have a denominator due to the fact it is a volume measure.
Denominator Categories	Female; Male Age less than 18 years
Denominator Details	Time Window: Not applicable Not applicable
Exclusions	Not applicable. This measure does not have a denominator due to the fact it is a volume measure.
Exclusion Details	Not applicable. This measure does not have a denominator due to the fact it is a volume measure.
Risk Adjustment	no risk adjustment necessary Not applicable
Stratification	Not applicable
Type Score	Count better quality = higher score
Algorithm	The volume is the number of discharges with a procedure for pediatric heart surgery.

	0352 Failure to rescue in-hospital mortality (risk adjusted)
Steward	The Children´s Hospital of Philadelphia | 3535 Market Street, Suite 1029 | Philadelphia | Pennsylvania | 19104
Description	Percentage of patients who died with a complications in the hospital.
Type	Outcome
Data Source	Administrative claims Linked patients hospitalizations claims records, augmented with Outpatient and Part B records; can also use unlinked data if linked files are not available to identify comorbidities and develop definitions of severity and other risk measure. URL http://www.resdac.org/ URL http://www.research.chop.edu/programs/cor/outcomes.php
Level	Facility, Health Plan, Integrated Delivery System, Population : County or City, Population: National, Population: Regional, Population: State
Setting	Hospital/Acute Care Facility
Numerator Statement	Patients who died with a complication plus patients who died without documented complications. Death is defined as death in the hospital. All patients in an FTR analysis have developed a complication (by definition). Complicated patient has at least one of the complications defined in Appendix B(see website http://www.research.chop.edu/programs/cor/outcomes.php). Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission. Comorbidities are defined in Appendix C (see website http://www.research.chop.edu/programs/cor/outcomes.php) using secondary ICD9 diagnosis codes of the current admission and primary or secondary ICD9 diagnosis codes of previous admission within 90 days of the admission date of the current admission. *When physician part B is available, the definition of complications and comorbidities are augmented to include CPT codes.
Numerator Details	Time Window: Index Hospitalization (Admission to Discharge) Patients who died with complication and patients who died without documented complications. Death is defined as death

	0352 Failure to rescue in-hospital mortality (risk adjusted)
	in the hospital.
Denominator Statement	General Surgery, Orthopedic and Vascular patients in specific DRGs with complications plus patients who died in the hospital without complications. Inclusions: adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see appendix A http://www.research.chop.edu/programs/cor/outcomes.php)
Denominator Categories	Female; Male 18-90
Denominator Details	Time Window: Index Hospitalization (Admission to Discharge) Adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see Appendix A http://www.research.chop.edu/programs/cor/outcomes.php)who developed an in hospital complication and those who died without a complication.
Exclusions	Patients over age 90, under age 18.
Exclusion Details	N/A
Risk Adjustment	risk-adjustment devised specifically for this measure/condition Risk Adjustment: Model was developed using logistic regression analysis. Associated data elements: age in years, sex, race, comorbidities, DRGs (combined with and without complications) and procedure codes within DRGs, transfer status. Failure to rescue is adjusted using a logistic regression model where y is a failure and the total N is composed of patients who develop a complication and patients who died without a complication. According to developer: The model adjustment variables can vary. We have found that FTR results are fairly stable, even with little adjustment, since all patients in an FTR analysis have developed a complication (by definition), they are a more homogeneous group of patients than the entire population. Hence severity adjustment plays somewhat less of a role than in other outcome measures. URL http://www.research.chop.edu/programs/cor/outcomes.php
Stratification	Complicated patient has at least one of the complications defined in Appendix B (http://www.research.chop.edu/programs/cor/outcomes.php) Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission. When Physician Part B file is available, the definition of complications and comorbidities are augmented to include CPT codes.
Type Score	Rate/proportion better quality = lower score
Algorithm	Refer to website (http://www.research.chop.edu/programs/cor/outcomes.php)

	0353 Failure to rescue 30-day mortality (risk adjusted)
Steward	The Children´s Hospital of Philadelphia | 3535 Market Street, Suite 1029 | Philadelphia | Pennsylvania | 19104
Description	Percentage of patients who died with a complication within 30 days from admission.
Type	Outcome
Data Source	Administrative claims Linked patients hospitalizations claims records, augmented with Outpatient and Part B records; can also use unlinked data if linked files are not available to identify comorbidities and develop definitions of severity and other risk measure. URL http://www.resdac.org/ URL http://www.research.chop.edu/programs/cor/outcomes.php
Level	Facility, Health Plan, Integrated Delivery System, Population: County or City, Population: National, Population: Regional, Population: State
Setting	Hospital/Acute Care Facility
Numerator Statement	Patients who died with a complication plus patients who died without documented complications. Death is defined as death within 30 days from admission. All patients in an FTR analysis have developed a complication (by definition). Complicated patient has at least one of the complications defined in Appendix B(see website http://www.research.chop.edu/programs/cor/outcomes.php). Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission. Comorbidities are defined in Appendix C(see website http://www.research.chop.edu/programs/cor/outcomes.php) using

	0353 Failure to rescue 30-day mortality (risk adjusted)
	secondary ICD9 diagnosis codes of the current admission and primary or secondary ICD9 diagnosis codes of previous admission within 90 days of the admission date of the current admission. *When physician part B is available, the definition of complications and comorbidities are augmented to include CPT codes.
Numerator Details	Time Window: Within 30 days from admission. Patients who died with complication and patients who died without documented complications. Death is defined as death within 30 days from admission.
Denominator Statement	General Surgery, Orthopedic and Vascular patients in specific DRGs with complications plus patients who died in the hospital without complications. Inclusions: adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see appendix A http://www.research.chop.edu/programs/cor/outcomes.php) Inclusions: adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see appendix A)
Denominator Categories	Female; Male 18-90
Denominator Details	Time Window: Within 30 days from admission Adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see Appendix A http://www.research.chop.edu/programs/cor/outcomes.php)who developed an in hospital complication and those who died without a complication.
Exclusions	Patients over age 90, under age 18.
Exclusion Details	N/A
Risk Adjustment	risk-adjustment devised specifically for this measure/condition Risk Adjustment: Model was developed using logistic regression analysis. Associated data elements: age in years, sex, race, comorbidities, DRGs (combined with and without complications) and procedure codes within DRGs, transfer status. Failure to rescue is adjusted using a logistic regression model where y is a failure and the total N is composed of patients who develop a complication and patients who died without a complication. According to developer: The model adjustment variables can vary. We have found that FTR results are fairly stable, even with little adjustment, since all patients in an FTR analysis have developed a complication (by definition), they are a more homogeneous group of patients than the entire population. Hence severity adjustment plays somewhat less of a role than in other outcome measures. URL http://www.research.chop.edu/programs/cor/outcomes.php
Stratification	Complicated patient has at least one of the complications defined in Appendix B (http://www.research.chop.edu/programs/cor/outcomes.php) Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission. When Physician Part B file is available, the definition of complications and comorbidities are augmented to include CPT codes.
Type Score	Rate/proportion better quality = lower score
Algorithm	Refer to website (http://www.research.chop.edu/programs/cor/outcomes.php)

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
Steward	Agency for Healthcare Research and Quality | 540 Gaither Road | Rockville | Maryland | 20850
Description	Percentage of cases having developed specified complications of care with an in-hospital death.
Type	Outcome
Data Source	Administrative claims The data source is hospital discharge data such as the HCUP State Inpatient Databases (SID) or equivalent using UB-04 coding standards. The data collection instrument is public-use AHRQ QI software available in SAS or Windows versions. URL None http://www.qualityindicators.ahrq.gov/software.htm None URL http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf None
Level	Facility

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
Setting	Hospital/Acute Care Facility
Numerator Statement	All discharges with a disposition of "deceased" (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.
Numerator Details	Time Window: Time window can be determined by user, but is generally a calendar year. All discharges with a disposition of "deceased" (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.
Denominator Statement	All surgical discharges age 18 years and older or MDC 14 (pregnancy, childbirth, and puerperium) defined by specific DRGs or MS-DRGs and an ICD-9-CM code for an operating room procedure, principal procedure within 2 days of admission OR admission type of elective (ATYPE=3) with potential complications of care listed in Death among Surgical definition (e.g., pneumonia, DVT/PE, sepsis, shock/cardiac arrest, or GI hemorrhage/acute ulcer).
Denominator Categories	Female 18 and older
Denominator Details	Time Window: Time window can be determined by user, but is generally a calendar year. All surgical discharges age 18 years and older or MDC 14 (pregnancy, childbirth, and puerperium) defined by specific DRGs or MS-DRGs and an ICD-9-CM code for an operating room procedure, principal procedure within 2 days of admission OR admission type of elective (ATYPE=3) with potential complications of care listed in Death among Surgical definition (pneumonia, DVT/PE, sepsis, shock/cardiac arrest, or GI hemorrhage/acute ulcer). See Patient Safety Indicators Appendices: • Appendix A – Operating Room Procedure Codes • Appendix D – Surgical Discharge DRGs • Appendix E – Surgical Discharge MS-DRGs PSI appendices at: http://www.qualityindicators.ahrq.gov/downloads/psi/TechSpecs42/PSI%20Appendices.pdf: FTR 2 - DVT/PE: Denominator A diagnosis of pulmonary embolism or deep vein thrombosis in any secondary diagnosis field ICD-9-CM Pulmonary Embolism and Deep Vein Thrombosis diagnosis codes: Pulmonary Embolism 4151 PULMONARY EMBOLISM AND INFARCTION 41511 IATROGENIC PULMONARY EMBOLISM AND INFARCTION 41519 PULMONARY EMBOLISM AND INFARCTION, OTHER Deep Vein Thrombosis 45111 PHLEBITIS AND THROMBOSIS OF FEMORAL VEIN (DEEP) (SUPERFICIAL) 45119 PHLEBITIS AND THROMBOPHLEBITIS OF DEEP VESSEL OF LOWER EXTREMITIES – OTHER 4512 PHLEBITIS AND THROMBOPHLEBITIS OF LOWER EXTREMITIES UNSPECIFIED 45181 PHLEBITIS AND THROMBOPHLEBITIS OF ILIAC VEIN 4519 PHLEBITIS AND THROMBOPHLEBITIS OF OTHER SITES - OF UNSPECIFIED SITE 45340 DVT-EMBLSM LOWER EXT NOS (OCT 04) 45341 DVT-EMB PROX LOWER EXT (OCT 04) 45342 DVT-EMB DISTAL LOWER EXT (OCT 04) 4538 OTHER VENOUS EMBOLISM AND THROMBOSIS OF OTHER SPECIFIED VEINS 4539

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	OTHER VENOUS EMBOLISM AND THROMBOSIS OF UNSPECIFIED SITE FTR 3 – Pneumonia: Denominator A diagnosis of pneumonia in any secondary diagnosis field ICD-9-CM Pneumonia diagnosis codes: 4820 PNEUMONIA DUE TO KLEBSIELLA PNEUMONIAE 4821 PNEUMONIA DUE TO PSEUDOMONAS 4822 PNEUMONIA DUE TO HEMOPHILUS INFLUENZAE [H. INFLUENZAE] 4823 PNEUMONIA DUE TO STREPTOCOCCUS 48230 PNEUMONIA DUE TO STREPTOCOCCUS – STREPTOCOCCUS, UNSPECIFIED 48231 PNEUMONIA DUE TO STREPTOCOCCUS – GROUP A 48232 PNEUMONIA DUE TO STREPTOCOCCUS – GROUP B 48239 PNEUMONIA DUE TO STREPTOCOCCUS – OTHER STREPTOCOCCUS 4824 PNEUMONIA DUE TO STAPHYLOCOCCUS 48240 PNEUMONIA DUE TO STAPHYLOCOCCUS – PNEUMONIA DUE TO STAPHYLOCOCCUS, UNSPECIFIED 48241 METHICILLIN SUSCEPTIBLE PNEUMONIA DUE TO STAPHYLOCOCCUS AUREUS OCT08- 48242 METHICILLIN RESISTANT PNEUMONIA DUE TO STAPHYLOCOCCUS AUREUS OCT08- 48249 PNEUMONIA DUE TO STAPHYLOCOCCUS – OTHER STAPHYLOCOCCUS PNEUMONIA 4828 PNEUMONIA DUE TO OTHER SPECIFIED BACTERIA 48281 PNEUMONIA DUE TO OTHER SPECIFIED BACTERIA – ANAEROBES 48282 PNEUMONIA DUE TO OTHER SPECIFIED BACTERIA – EXCHERICHIA COLI [E COLI] 48283 PNEUMONIA DUE TO OTHER SPECIFIED BACTERIA – OTHER GRAM-NEGATIVE BACTERIA 48284 PNEUMONIA DUE TO OTHER SPECIFIED BACTERIA – LEGIONNAIRES´ DISEASE 48289 PNEUMONIA DUE TO OTHER SPECIFIED BACTERIA – OTHER SPECIFIED BACTERIA 4829 BACTERIAL PNEUMONIA UNSPECIFIED 485 BRONCHOPNEUMONIA, ORGANISM UNSPECIFIED 486 PNEUMONIA, ORGANISM UNSPECIFIED 5070 DUE TO INHALATION OF FOOD OR VOMITUS 514 PULMONARY CONGESTION AND HYPOSTASIS FTR 4 – Sepsis: Denominator A diagnosis of sepsis in any secondary diagnosis field Include ICD-9-CM Sepsis diagnosis codes:

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	0380 STREPTOCOCCAL SEPTICEMIA 0381 STAPHYLOCOCCAL SEPTICEMIA 03810 STAPHYLOCOCCAL SEPTICEMIA, UNSPECIFIED 03811 METHICILLIN SUSCEPTIBLE STAPHYLOCOCCUS AUREUS SEPTICEMIA OCT08- 03812 METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS SEPTICEMIA OCT08- 03819 OTHER STAPHYLOCOCCAL SEPTICEMIA 0382 PNEUMOCOCCAL SEPTICEMIA (STREPTOCOCCUS PNEUMONIAE SEPTICEMIA) 0383 SEPTICEMIA DUE TO ANAEROBES 03840 GRAM-NEGATIVE ORGANISM, UNSPECIFIED 03841 HEMOPHILUS INFLUENZAE 03842 ESCHERICHIA COLI 03843 PSEUDOMONAS 03844 SERRATIA 03849 SEPTICEMIA DUE TO OTHER GRAM-NEGATIVE ORGANISMS 0388 OTHER SPECIFIED SEPTICEMIAS 0389 UNSPECIFIED SEPTICEMIA 78552 SEPTIC SHOCK OCT03- 78559* SHOCK W/O MENTION OF TRAUMA- OTHER 99591 SYSTEMIC INFLAMMATORY RESPONSE SYNDROME DUE TO INFECTIOUS PROCESS W/O ORGAN DYSFUNCTION 99592 SYSTEMIC INFLAMMATORY RESPONSE SYNDROME DUE TO INFECTIOUS PROCESS W/ ORGAN DYSFUNCTION 9980 POSTOPERATIVE SHOCK *No longer valid in FY2005 FTR 5 - Shock or Cardiac Arrest: Denomniator A diagnosis of shock or cardiac arrest in any secondary field or any procedure for shock or cardiac arrest Include ICD-9-CM Shock or Cardiac Arrest diagnosis codes: 4275 CARDIAC ARREST 6395 COMPLICATIONS FOLLOWING ABORTION AND ECTOPIC AND MOLAR PREGNANCIES, SHOCK 66910 SHOCK DURING OR FOLLOWING LABOR AND DELIVERY – UNSPECIFIED AS TO EPISODE OF CARE OR NOT APPLICABLE 66911

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	SHOCK DURING OR FOLLOWING LABOR AND DELIVERY – DELIVERED, W/ OR W/O MENTION OF ANTEPARTUM CONDITION 66912 SHOCK DURING OR FOLLOWING LABOR AND DELIVERY – DELIVERED, W/ MENTION OF POSTPARTUM COMPLICATION 66913 SHOCK DURING OR FOLLOWING LABOR AND DELIVERY – ANTEPARTUM CONDITION OR COMPLICATION 66914 SHOCK DURING OR FOLLOWING LABOR AND DELIVERY – POSTPARTUM CONDITION OR COMPLICATION 7855 SHOCK NOS 78550 SHOCK, UNSPECIFIED 78551 CARDIOGENIC SHOCK 78552 SEPTIC SHOCK OCT03- 78559 SHOCK W/O MENTION OF TRAUMA- OTHER 7991 RESPIRATORY ARREST 9950 OTHER ANAPHYLACTIC SHOCK 9954 SHOCK DUE TO ANESTHESIA 9980 POSTOPERATIVE SHOCK 9994 ANAPHYLACTIC SHOCK DUE TO SERUM ICD-9-CM Shock or Cardiac Arrest procedure codes: 9393 NONMECHANICAL METHODS OF RESUSCITATION 9960 CARDIOPULMONARY RESUSCITATION, NOS 9963 CLOSED CHEST CARDIAC MASSAGE FTR 6 - GI Hemorrhage/Acute Ulcer: Denominator A diagnosis of hemorrhage or acute ulcer in any secondary field ICD-9-CM GI Hemorrhage/Acute Ulcer diagnosis codes: 4560 ESOPHAGEAL VARICES W/ BLEEDING 45620 ESOPHAGEAL VARICES IN DISEASES CLASSIFIED ELSEWHERE W/ BLEEDING 5307 GASTROESOPHAGEAL LACERATION-HEMORRHAGE SYNDROME 53082 ESOPHAGEAL HEMORRHAGE Gastric ulcer: 53100 ACUTE W/ HEMORRHAGE – W/O MENTION OF OBSTRUCTION 53101 ACUTE W/ HEMORRHAGE – W/ OBSTRUCTION 53110 ACUTE W/ PERFORATION – W/O MENTION OF OBSTRUCTION 53111

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	ACUTE W/ PERFORATION – W/ OBSTRUCTION 53120 ACUTE W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53121 ACUTE W/ HEMORRHAGE AND PERFORATION – W/ OBSTRUCTION 53130 ACUTE W/O MENTION OF HEMORRHAGE OR PERFORATION – W/O MENTION OF OBSTRUCTION 53131 ACUTE W/O MENTION OF HEMORRHAGE OR PERFORATION – W/ OBSTRUCTION 53190 UNSPECIFIED AS ACUTE OR CHRONIC, W/O MENTION OF HEMORRHAGE OR PERFORATION – W/O MENTION OF OBSTRUCTION 53191 UNSPECIFIED AS ACUTE OR CHRONIC, W/O MENTION OF HEMORRHAGE OR PERFORATION – W/ OBSTRUCTION Duodenal ulcer: 53200 ACUTE W/ HEMORRHAGE – W/O MENTION OF OBSTRUCTION 53201 ACUTE W/ HEMORRHAGE – W/ OBSTRUCTION 53210 ACUTE W/ PERFORATION – W/O MENTION OF OBSTRUCTION 53211 ACUTE W/ PERFORATION – W/ OBSTRUCTION 53220 ACUTE W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53221 ACUTE W/ HEMORRHAGE AND PERFORATION – W/ OBSTRUCTION 53230 ACUTE W/O MENTION OF HEMORRHAGE OR PERFORATION – W/O MENTION OF OBSTRUCTION 53231 ACUTE W/O MENTION OF HEMORRHAGE OR PERFORATION – W/ OBSTRUCTION 53290 UNSPECIFIED AS ACUTE OR CHRONIC, W/O MENTION OF HEMORRHAGE OR PERFORATION – W/O MENTION OF OBSTRUCTION 53291 UNSPECIFIED AS ACUTE OR CHRONIC, W/O MENTION OF HEMORRHAGE OR PERFORATION – W/ OBSTRUCTION Peptic ulcer: 53300 SITE UNSPECIFIED ACUTE W/ HEMORRHAGE – W/O MENTION OF OBSTRUCTION 53301 SITE UNSPECIFIED ACUTE W/ HEMORRHAGE – W/ OBSTRUCTION 53310 SITE UNSPECIFIED ACUTE W/ PERFORATION – W/O MENTION OF OBSTRUCTION 53311 SITE UNSPECIFIED ACUTE W/ PERFORATION – W/ OBSTRUCTION 53320 SITE UNSPECIFIED ACUTE W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53321 SITE UNSPECIFIED ACUTE W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53330 SITE UNSPECIFIED ACUTE W/O MENTION OF HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53331

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	SITE UNSPECIFIED ACUTE W/O MENTION OF HEMORRHAGE AND PERFORATION – W/ OBSTRUCTION 53390 SITE UNSPECIFIED AS ACUTE OR CHRONIC, W/O MENTION OF HEMORRHAGE OR PERFORATION – W/O MENTION OF OBSTRUCTION 53391 UNSPECIFIED AS ACUTE OR CHRONIC, W/O MENTION OF HEMORRHAGE OR PERFORATION – W/ OBSTRUCTION Gastrojejunal ulcer: 53400 ACUTE W/ HEMORRHAGE – W/O MENTION OF OBSTRUCTION 53401 ACUTE W/ HEMORRHAGE – W/ OBSTRUCTION 53410 ACUTE W/ PERFORATION – W/O MENTION OF OBSTRUCTION 53411 ACUTE W/ PERFORATION – W/ OBSTRUCTION 53420 ACUTE W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53421 ACUTE W/ HEMORRHAGE AND PERFORATION – W/ OBSTRUCTION 53430 ACUTE W/O MENTION OF HEMORRHAGE OR PERFORATION – W/O MENTION OF OBSTRUCTION 53431 ACUTE W/O MENTION OF HEMORRHAGE OR PERFORATION – W/ OBSTRUCTION 53490 UNSPECIFIED AS ACUTE OR CHRONIC, W/O MENTION OF HEMORRHAGE OR PERFORATION – W/O MENTION OF OBSTRUCTION 53491 UNSPECIFIED AS ACUTE OR CHRONIC, W/O MENTION OF HEMORRHAGE OR PERFORATION – W/ OBSTRUCTION Gastritis and duodenitis: 53501 ACUTE GASTRITIS – W/ HEMORRHAGE 53511 ATROPHIC GASTRITIS – W/ HEMORRHAGE 53521 GASTRIC MUCOSAL HYPERTROPHY – W/ HEMORRHAGE 53531 ALCOHOLIC GASTRITIS – W/ HEMORRHAGE 53541 OTHER SPECIFIED GASTRITIS – W/ HEMORRHAGE 53551 UNSPECIFIED GASTRITIS AND GASTRODUODENITIS – W/ HEMORRHAGE 53561 DUODENITIS – W/ HEMORRHAGE 53783 ANGIODYSPLASIA OF STOMACH AND DUODENUM – W/ HEMORRHAGE 53784 DIEULAFOY LESION (HEMORRHAGIC) OF STOMACH AND DUODENUM 56202 DIVERTICULOSIS OF SMALL INTESTINE – W/ HEMORRHAGE 56203 DIVERTICULITIS OF SMALL INTESTINE – W/ HEMORRHAGE 56212 DIVERTICULOSIS OF COLON – W/ HEMORRHAGE

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	56213 DIVERTICULITIS OF COLON – W/ HEMORRHAGE 5693 HEMORRHAGE OF RECTUM AND ANUS 56985 ANGIODYSPLASIA OF INTESTINE – W/ HEMORRHAGE 56986 DIEULAFOY LESION (HEMORRHAGIC) OF INTESTINE 5780 HEMATEMESIS 5781 BLOOD IN STOOL 5789 HEMORRHAGE OF GASTROINTESTINAL TRACT, UNSPECIFIED
Exclusions	Exclude cases: • age 90 years and older • transferred to an acute care facility (DISP = 2) • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) NOTE: Additional exclusion criteria is specific to each diagnosis (pneumonia, DVT/PE, sepsis, shock/cardiac arrest, or GI hemorrhage/acute ulcer). See 2a.10.
Exclusion Details	Exclude cases: • age 90 years and older • transferred to an acute care facility (DISP = 2) • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) NOTE: Additional exclusion criteria is specific to each diagnosis (pneumonia, DVT/PE, sepsis, shock/cardiac arrest, or GI hemorrhage/acute ulcer). See below for specifics. FTR 2 - DVT/PE: Exclusions • with a diagnosis of pulmonary embolism or deep vein thrombosis in the primary diagnosis field (Defined in 2a.8) • with a diagnosis of abortion-related or postpartum obstetric pulmonary embolism in the primary diagnosis field ICD-9-CM Abortion-related and Postpartum Obstetric Pulmonary Embolism diagnosis codes: 63460 SPONTANEOUS ABORTION W/ EMBOLISM - UNSPECIFIED 63461 SPONTANEOUS ABORTION W/ EMBOLISM - INCOMPLETE 63462 SPONTANEOUS ABORTION W/ EMBOLISM - COMPLETE 63560 LEGAL ABORTION W/ EMBOLISM - UNSPECIFIED 63561 LEGAL ABORTION W/ EMBOLISM - INCOMPLETE 63562 LEGAL ABORTION W/ EMBOLISM - COMPLETE 63660 ILLEGAL ABORTION W/ EMBOLISM - UNSPECIFIED 63661 ILLEGAL ABORTION W/ EMBOLISM - INCOMPLETE 63662 ILLEGAL ABORTION W/ EMBOLISM - COMPLETE 63760 ABORTION NOS W/ EMBOLISM - UNSPECIFIED 63761 ABORTION NOS W/ EMBOLISM - INCOMPLETE 63762

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	ABORTION NOS W/ EMBOLISM - COMPLETE 6386 ATTEMPTED ABORTION W/ EMBOLISM 6396 POSTABORTION EMBOLISM 67320 OBSTETRICAL BLOOD-CLOT EMBOLISM, UNSPECIFIED AS TO EPISODE OF CARE OR NOT APPLICABLE 67321 OBSTETRICAL BLOOD-CLOT EMBOLISM, DELIVERED, W/ OR W/O MENTION OF ANTEPARTUM CONDITION 67322 OBSTETRICAL BLOOD-CLOT EMBOLISM, DELIVERED, W/ MENTION OF POSTPARTUM COMPLICATION 67323 OBSTETRICAL BLOOD-CLOT EMBOLISM, ANTEPARTUM CONDITION OR COMPLICATION 67324 OBSTETRICAL BLOOD-CLOT EMBOLISM, POSTPARTUM CONDITION OR COMPLICATION FTR 3 – Pneumonia: Exclusions • with a diagnosis of pneumonia or respiratory complications in the primary diagnosis field (Defined in 2a.8) • with any diagnosis code for viral pneumonia • with any diagnosis of or procedure for immunocompromised state. • MDC 4 (diseases/disorders of respiratory system) See Patient Safety Indicators Appendices: • Appendix I – Immunocompromised State Diagnosis and Procedure Codes PSI appendices at: http://www.qualityindicators.ahrq.gov/downloads/psi/TechSpecs42/PSI%20Appendices.pdf: ICD-9-CM Respiratory Complications diagnosis code: 9973 RESPIRATORY COMPLICATIONS ICD-9-CM Viral Pneumonia diagnosis codes: 4800 ADENOVIRAL PNEUMONIA 4801 RESPIRATORY SYNCYTIAL VIRAL PNEUMONIA 4802 PARAINFLUENZA VIRAL PNEUMONIA 4803 PNEUMONIA DUE TO SARS OCT03- 4808 VIRAL PNEUMONIA NOT ELSEWHERE CLASSIFIED 4809 VIRAL PNEUMONIA UNSPECIFIED 481 PNEUMOCOCCAL PNEUMONIA 4830 PNEUMONIA DUE TO MYCOPLASMA PNEUMONIAE 4831 PNEUMONIA DUE TO CHLAMYDIA 4838 PNEUMONIA DUE TO OTHER SPECIFIED ORGANISM 4841 PNEUMONIA IN CYTOMEGALIC INCLUSION DISEASE 4843 PNEUMONIA IN WHOOPING COUGH 4845 PNEUMONIA IN ANTHRAX 4846 PNEUMONIA IN ASPERGILLOSIS

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	4847 PNEUMONIA IN OTHER SYSTEMIC MYCOSES 4848 PNEUMONIA IN INFECTIOUS DISEASE NOT ELSEWHERE CLASSIFIED 4870 INFLUENZA W/ PNEUMONIA 4871 FLU W/ RESPIRATORY MANIFEST NOT ELSEWHERE CLASSIFIED 4878 FLU W/ MANIFESTATION NOT ELSEWHERE CLASSIFIED 488 FLU D/T AVIAN FLU VIRUS 4880 INFLUENZA DUE TO IDENTIFIED AVIAN INFLUENZA VIRUS OCT09- 4881 INFLUENZA DUE TO IDENTIFIED NOVEL H1N1 INFLUENZA VIRUS OCT09- FTR 4 – Sepsis: Exclusions • with a diagnosis of sepsis in the principal diagnosis field (Defined in 2a.8) • with any diagnosis of infection • with any diagnosis of or procedure for immunocompromised state • with a length of stay of less than 4 days See Patient Safety Indicators Appendices: • Appendix F – Infection Diagnosis Codes • Appendix I – Immunocompromised State Diagnosis and Procedure Codes PSI appendices at: http://www.qualityindicators.ahrq.gov/downloads/psi/TechSpecs42/PSI%20Appendices.pdf: FTR 5 - Shock or Cardiac Arrest: Exclusions • with a primary diagnosis of shock or cardiac arrest (Defined in 2a.8) • with a primary diagnosis of trauma • with a primary diagnosis of hemorrhage or GI hemorrhage • with a primary diagnosis of abortion-related shock • MDC 4 (diseases/disorders of respiratory system) • MDC 5 (diseases/disorders of circulatory system) See Patient Safety Indicators Appendices: • Appendix G – Trauma Diagnosis Codes PSI appendices at: http://www.qualityindicators.ahrq.gov/downloads/psi/TechSpecs42/PSI%20Appendices.pdf: ICD-9-CM Hemorrhage diagnosis codes: 2851 ACUTE POSTHEMORRHAGIC ANEMIA 4590 OTHER DISORDERS OF CIRCULATORY SYSTEM, HEMORRHAGE, UNSPECIFIED 56881 HEMOPERITONEUM (NONTRAUMATIC) 9582 CERTAIN EARLY COMPLICATIONS OF TRAUMA, SECONDARY AND RECURRENT HEMORRHAGE 99811 HEMORRHAGE COMPLICATING A PROCEDURE ICD-9-CM Gastrointestinal (GI) Hemorrhage diagnosis codes: 4560 ESOPHAGEAL VARICES W/ BLEEDING 45620 ESOPHAGEAL VARICES IN DISEASES CLASSIFIED ELSEWHERE W/ BLEEDING 5307 GASTROESOPHAGEAL LACERATION – HEMORRHAGE SYNDROME 53082 ESOPHAGEAL HEMORRHAGE

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	53100 GASTRIC ULCER ACUTE W/ HEMORRHAGE – W/O MENTION OF OBSTRUCTION 53101 GASTRIC ULCER ACUTE W/ HEMORRHAGE – W/ OBSTRUCTION 53120 GASTRIC ULCER ACUTE W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53121 GASTRIC ULCER ACUTE W/ HEMORRHAGE AND PERFORATION – W/ OBSTRUCTION 53140 GASTRIC ULCER CHRONIC OR UNSPECIFIED W/ HEMORRHAGE – W/O MENTION OF OBSTRUCTION 53141 GASTRIC ULCER CHRONIC OR UNSPECIFIED W/ HEMORRHAGE – W/ OBSTRUCTION 53160 GASTRIC ULCER CHRONIC OR UNSPECIFIED W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53161 GASTRIC ULCER CHRONIC OR UNSPECIFIED W/ HEMORRHAGE AND PERFORATION – W/ OBSTRUCTION 53200 DUODENAL ULCER ACUTE W/ HEMORRHAGE – W/O MENTION OF OBSTRUCTION 53201 DUODENAL ULCER ACUTE W/ HEMORRHAGE – W/ OBSTRUCTION 53220 DUODENAL ULCER ACUTE W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53221 DUODENAL ULCER ACUTE W/ HEMORRHAGE AND PERFORATION – W/ OBSTRUCTION 53240 DUODENAL ULCER CHRONIC OR UNSPECIFIED W/ HEMORRHAGE – W/O MENTION OF OBSTRUCTION 53241 DUODENAL ULCER CHRONIC OR UNSPECIFIED W/ HEMORRHAGE – W/ OBSTRUCTION 53260 DUODENAL ULCER CHRONIC OR UNSPECIFIED W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53261 DUODENAL ULCER CHRONIC OR UNSPECIFIED W/ HEMORRHAGE AND PERFORATION – W/ OBSTRUCTION 53300 PEPTIC ULCER, SITE UNSPECIFIED, ACUTE W/ HEMORRHAGE – W/O MENTION OF OBSTRUCTION 53301 PEPTIC ULCER, SITE UNSPECIFIED, ACUTE W/ HEMORRHAGE – W/ OBSTRUCTION 53320 PEPTIC ULCER, SITE UNSPECIFIED, ACUTE W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53321 PEPTIC ULCER, SITE UNSPECIFIED, ACUTE W/ HEMORRHAGE AND PERFORATION – W/ OBSTRUCTION 53340 PEPTIC ULCER, SITE UNSPECIFIED, CHRONIC OR UNSPECIFIED W/ HEMORRHAGE – W/O MENTION OF OBSTRUCTION 53341 PEPTIC ULCER, SITE UNSPECIFIED, CHRONIC OR UNSPECIFIED W/ HEMORRHAGE – W/ OBSTRUCTION 53360 PEPTIC ULCER, SITE UNSPECIFIED, CHRONIC OR UNSPECIFIED W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53361 PEPTIC ULCER, SITE UNSPECIFIED, CHRONIC OR UNSPECIFIED W/ HEMORRHAGE AND PERFORATION – W/ OBSTRUCTION 53400

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	GASTROJEJUNAL ULCER, ACUTE W/ HEMORRHAGE – W/O MENTION OF OBSTRUCTION 53401 GASTROJEJUNAL ULCER, ACUTE W/ HEMORRHAGE – W/ OBSTRUCTION 53420 GASTROJEJUNAL ULCER, ACUTE W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53421 GASTROJEJUNAL ULCER, ACUTE W/ HEMORRHAGE AND PERFORATION – W/ OBSTRUCTION 53440 GASTROJEJUNAL ULCER, CHRONIC OR UNSPECIFIED W/ HEMORRHAGE – W/O MENTION OF OBSTRUCTION 53441 GASTROJEJUNAL ULCER, CHRONIC OR UNSPECIFIED W/ HEMORRHAGE – W/ OBSTRUCTION 53460 GASTROJEJUNAL ULCER, CHRONIC OR UNSPECIFIED W/ HEMORRHAGE AND PERFORATION – W/O MENTION OF OBSTRUCTION 53461 GASTROJEJUNAL ULCER, CHRONIC OR UNSPECIFIED W/ HEMORRHAGE AND PERFORATION – W/ OBSTRUCTION 53501 GASTRITIS AND DUODENITIS, ACUTE GASTRITIS W/ HEMORRHAGE 53511 GASTRITIS AND DUODENITIS, ATROPHIC GASTRITIS W/ HEMORRHAGE 53521 GASTRITIS AND DUODENITIS, GASTRIC MUCOSAL HYPERTROPHY, W/ HEMORRHAGE 53531 GASTRITIS AND DUODENITIS, ALCOHOLIC GASTRITIS, W/ HEMORRHAGE 53541 GASTRITIS AND DUODENITIS, OTHER SPECIFIED GASTRITIS – W/ HEMORRHAGE 53551 GASTRITIS AND DUODENITIS, UNSPECIFIED GASTRITIS AND GASTRODUODENITIS – W/ HEMORRHAGE 53561 GASTRITIS AND DUODENITIS, DUODENITIS – W/ HEMORRHAGE 53783 OTHER SPECIFIED DISORDERS OF STOMACH AND DUODENUM, ANGIODYSPLASIA OF STOMACH AND DUODENUM – W/ HEMORRHAGE 53784 DIEULAFOY LESION (HEMORRHAGIC) OF STOMACH AND DUODENUM 56202 DIVERTICULOSIS OF SMALL INTESTINE – W/ HEMORRHAGE 56203 DIVERTICULITIS OF SMALL INTESTINE – W/ HEMORRHAGE 56212 DIVERTICULOSIS OF COLON – W/ HEMORRHAGE 56213 DIVERTICULITIS OF COLON – W/ HEMORRHAGE 5693 HEMORRHAGE OF RECTUM AND ANUS 56985 ANGIODYSPLASIA OF INTESTINE - W/ HEMORRHAGE 56986 DIEULAFOY LESION (HEMORRHAGIC) OF INTESTINE 5780 GASTROINTESTINAL HEMORRHAGE, HEMATEMESIS 5781 GASTROINTESTINAL HEMORRHAGE, BLOOD IN STOOL 5789

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	GASTROINTESTINAL HEMORRHAGE, HEMORRHAGE OF GASTROINTESTINAL TRACT, UNSPECIFIED ICD-9-CM Abortion-related Shock diagnosis codes: 63450 SPONTANEOUS ABORTION W/ SHOCK - UNSPECIFIED 63451 SPONTANEOUS ABORTION W/ SHOCK - INCOMPLETE 63452 SPONTANEOUS ABORTION W/ SHOCK - COMPLETE 63550 LEGAL ABORTION W/ SHOCK - UNSPECIFIED 63551 LEGAL ABORTION W/ SHOCK - INCOMPLETE 63552 LEGAL ABORTION W/ SHOCK - COMPLETE 63650 ILLEGAL ABORTION W/ SHOCK - UNSPECIFIED 63651 ILLEGAL ABORTION W/ SHOCK - INCOMPLETE 63652 ILLEGAL ABORTION W/ SHOCK - COMPLETE 63750 ABORTION NOS W/ SHOCK - UNSPECIFIED 63751 ABORTION NOS W/ SHOCK - INCOMPLETE 63752 ABORTION NOS W/ SHOCK - COMPLETE 6385 ATTEMPTED ABORTION W/ SHOCK FTR 6 - GI Hemorrhage/Acute Ulcer: Exclusions • with a primary diagnosis of hemorrhage or acute ulcer (Defined in 2a.8) • with a primary diagnosis of trauma • with a primary diagnosis of alcoholism • with a primary diagnosis of anemia • MDC 6 (diseases and disorders of the digestive system) • MDC 7 (diseases and disorders of the hepatobiliary system and pancreas) See Patient Safety Indicators Appendices: • Appendix G – Trauma Diagnosis Codes PSI appendices at: http://www.qualityindicators.ahrq.gov/downloads/psi/TechSpecs42/PSI%20Appendices.pdf: ICD-9-CM Alcoholism diagnosis codes: 2910 ALCOHOL WITHDRAWAL DELIRIUM 2911 ALCOHOL AMNESTIC SYNDROME 2912 OTHER ALCOHOLIC DEMENTIA 2913 ALCOHOL WITHDRAWAL HALLUCINOSIS 2914 IDIOSYNCRATIC ALCOHOL INTOXICATION 2915 ALCOHOLIC JEALOUSY 29181 OTHER SPECIFIED ALCOHOLIC PSYCHOSES, ALCOHOL WITHDRAWAL 29182 ALCOHOL INDUCED SLEEP DISORDERS OCT05-

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	29189 OTHER SPECIFIED ALCOHOLIC PSYCHOSES, OTHER 2919 UNSPECIFIED ALCOHOLIC PSYCHOSIS 30300 ACUTE ALCOHOLIC INTOXICATION - UNSPECIFIED 30301 ACUTE ALCOHOLIC INTOXICATION - CONTINUOUS 30302 ACUTE ALCOHOLIC INTOXICATION - EPISODIC 30303 ACUTE ALCOHOLIC INTOXICATION - IN REMISSION 30390 OTHER AND UNSPECIFIED ALCOHOL DEPENDENCE - UNSPECIFIED 30391 OTHER AND UNSPECIFIED ALCOHOL DEPENDENCE - CONTINUOUS 30392 OTHER AND UNSPECIFIED ALCOHOL DEPENDENCE - EPISODIC 30393 OTHER AND UNSPECIFIED ALCOHOL DEPENDENCE - IN REMISSION 30500 NONDEPENDENT ABUSE OF DRUGS, ALCOHOL ABUSE - UNSPECIFIED 30501 NONDEPENDENT ABUSE OF DRUGS, ALCOHOL ABUSE - CONTINUOUS 30502 NONDEPENDENT ABUSE OF DRUGS, ALCOHOL ABUSE - EPISODIC 30503 NONDEPENDENT ABUSE OF DRUGS, ALCOHOL ABUSE – IN REMISSION 4255 ALCOHOLIC CARDIOMYOPATHY 53530 ALCOHOLIC GASTRITIS, W/O MENTION OF HEMORRHAGE 53531 ALCOHOLIC GASTRITIS, W/ HEMORRHAGE 5710 ALCOHOLIC FATTY LIVER 5711 ACUTE ALCOHOLIC HEPATITIS 5712 ALCOHOLIC CIRRHOSIS OF LIVER 5713 ALCOHOLIC LIVER DAMAGE, UNSPECIFIED 9800 TOXIC EFFECT OF ALCOHOL, ETHYL ALCOHOL 9809 TOXIC EFFECT OF ALCOHOL, UNSPECIFIED ALCOHOL ICD-9-CM Anemia diagnosis codes: 2800 SECONDARY TO BLOOD LOSS [CHRONIC] 2851 ACUTE POSTHEMORRHAGIC ANEMIA
Risk Adjustment	risk adjustment method widely or commercially available The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age in years (in 5-year age groups), modified CMS DRG and AHRQ Comorbidities. The reference population used in the model is the universe of discharges for states that participate in the HCUP State

	0351 Death among surgical inpatients with serious, treatable complications (PSI 4)
	Inpatient Databases (SID) for the year 2007 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate. URL http://qualityindicators.ahrq.gov/downloads/psi/PSI_Risk_Adjustment_Tables_(Version_4_2).pdf None
Stratification	User has an option to stratify by Gender, age (5-year age groups), race / ethnicity, primary payer, and custom stratifiers.
Type Score	Rate/proportion better quality = lower score
Algorithm	Each indicator is expressed as a rate, is defined as outcome of interest / population at risk or numerator / denominator. 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 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. 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/PSI_download.htm

	0515 Ambulatory surgery patients with appropriate method of hair removal
Steward	ASC Quality Collaboration | 5686 Escondida Blvd S | St. Petersburg | Florida | 33715
Description	Percentage of ASC admissions with appropriate surgical site hair removal.
Type	Process
Data Source	Paper medical record/flow-sheet Facilities may review records such as a pre-surgical checklist, nursing notes, operating room record, and operative report as needed for documentation of method of hair removal. Clinical logs designed to capture information relevant to preoperative hair removal may also be used. No specific collection instrument is required, although the ASC Quality Collaboration has developed a sample data collection instrument that may be used as desired. Facilities may use any collection instrument that allows tracking of the method of hair removal for all admissions with surgical site hair removal. URL Not required http://ascquality.org/documents/ASCQualityCollaborationImplementationGuide.pdf Not required URL http://ascquality.org/documents/ASCQualityCollaborationImplementationGuide.pdf Not required
Level	Facility/Agency
Setting	Ambulatory Care: Amb Surgery Center
Numerator Statement	ASC admissions with surgical site hair removal with a razor or clippers from the scrotal area, or with clippers or depilatory cream from all other surgical sites
Numerator Details	Time Window: In-facility, prior to discharge DEFINITIONS: Admission: completion of registration upon entry into the facility
Denominator Statement	All ASC admissions with surgical site hair removal
Denominator Categories	Female; Male All ages
Denominator Details	Time Window: In-facility, prior to discharge DEFINITIONS: Admission: completion of registration upon entry into the facility
Exclusions	ASC admissions who perform their own hair removal
Exclusion Details	To collect data for the denominator exclusion, centers must track patients who perform their own hair removal
Risk	no risk adjustment necessary

	0515 Ambulatory surgery patients with appropriate method of hair removal
Adjustment	Not applicable
Stratification	The measure is not stratified
Type Score	Rate/proportion better quality = higher score
Algorithm	1a. The number of admissions with surgical site hair removal is determined. 1b. The number of admissions who performed their own surgical site hair removal is determined. 1c. The value determined in step 1b is subtracted from the value determined in step 1a to yield the measure denominator. 2. The number of admissions with appropriate surgical site hair removal (hair removal with razor or clippers from the scrotal area, or hair removal with clippers or depilatory cream from all other surgical sites) is determined. This value is the measure numerator. 3. The number of ASC admissions with appropriate surgical site hair removal (step 2) is divided by the number of ASC admissions with surgical site hair removal (steps 1a through 1c) during the reporting period, yielding the rate of appropriate surgical site hair removal for the reporting period.

	1550 Hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)
Steward	Centers for Medicare & Medicaid Services | 7500 Security Boulevard, Mail Stop S3-01-02 | Baltimore | Maryland | 21244-1850
Description	This measure estimates hospital risk-standardized complication rates (RSCRs) associated with primary elective THA and TKA in patients 65 years and older. The measure uses Medicare claims data to identify complications occurring from the date of index admission to 90 days post date of the index admission.
Type	Outcome
Data Source	Electronic administrative data/claims The datasets used to create the measures are described below. 1. 2008 Part A (inpatient) data Part A inpatient data includes claims paid for Medicare inpatient hospital care, skilled nursing facility care, some home health agency services, and hospice care. For purposes of this project, Part A is used to refer to inpatient services only and includes data from 2 time periods: a. Index admission: Index admission data are based on the inclusion/exclusion criteria for THA/TKA, and comorbidities (if any) are identified from the secondary diagnoses associated with the index admission. b. Pre-index: 12 months prior to the index admission ("pre-index"). 2. 2008 Part A (outpatient) data – 12 months pre-index Hospital outpatient refers to Medicare claims paid for the facility component of surgical or diagnostic procedures, emergency room care, and other non-inpatient services performed in a hospital outpatient department or ambulatory surgical/diagnostic center. 3. Part B data – 12 months pre-index Part B data refers to Medicare claims for the services of physicians (regardless of setting) and other outpatient care, services, and supplies. For purposes of this project, Part B services included only face-to-face encounters between a care provider and patient. We thus do not include services such as laboratory tests, medical supplies, or other ambulatory services. 4. 2008 Medicare Enrollment Database This database contains Medicare beneficiary demographic, benefit/coverage, enrollment status on admission, and vital status information. These data have previously been shown to accurately reflect patient vital status (Fleming Fisher et al., 1992). Fleming C., Fisher ES, Chang CH, Bubolz D, Malenda J. Studying outcomes and hospital utilization in the elderly: The advantages of a merged data base for Medicare and Veterans Affairs Hospitals. Medical Care. 1992; 30(5): 377-91. URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979 N/A
Level	Facility/Agency
Setting	Hospital
Numerator Statement	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); thus, we are using this field to define the outcome (i.e. adverse events) following THA and/or TKA procedures.

	1550 Hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)
	The composite complication is a binary outcome (yes for any complication(s); no for no complications). Therefore, if a patient experiences 1 or more complications, the outcome variable will get coded as a "yes." Complications are counted in the measure only if they occur during the index hospital admission or during a readmission. The complications captured in the numerator are identified during the index admission or associated with a readmission up to 90 days post date of index admission, depending on the complication. The follow-up period for complications from date of index admission is as follows: 1) Mechanical complications - 90 days 2) Periprosthetic joint infection (PJI) - 90 days 3) Wound infection - 90 days 4) Surgical site bleeding - 30 days 5) Pulmonary embolism - 30 days 6) Death - 30 days 7) AMI - 7 days 8) Pneumonia - 7 days 9) Sepsis/septicemia - 7days
Numerator Details	Time Window: The specific time frame for the complication varies (depending on the complication) from 7 to 90 days post date of the index admission (see "Numerator Details"). Complications are identified using the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) diagnosis and procedure codes. The complications listed below are counted in the measure if coded in the primary or secondary diagnosis fields during either the index admission or a readmission. Multiple complications count only once toward the numerator. For example, if a patient experiences a mechanical complication and also has an acute myocardial infarction, the combined events will be counted only once in the measure. ICD-9 diagnosis and procedure codes used to identify complications are listed below: Complications identified from the date of index admission to 7 days post date of index admission: 1. Acute Myocardial Infarction– counted in the measure if coded in the principal or secondary discharge diagnosis field on the index admission. For readmissions, it is only counted when coded in the principal discharge diagnosis field. Presence of one of the following diagnosis codes: 410.xx excluding 410.x2 2. Pneumonia– counted in the measure if coded in the principal or secondary discharge diagnosis field on the index admission. For readmissions, it is only counted when coded in the principal discharge diagnosis field. Presence of one of the following diagnosis codes: 480, 480.0, 480.1, 480.2, 480.3, 480.8, 480.9, 481, 482, 482.0, 482.1, 482.2, 482.3, 482.30,482.31, 482.32, 482.39, 482.4, 482.40, 482.41, 482.42, 482.49, 482.81, 482.82, 482.83, 482.84, 482.89, 482.9, 483, 483.0, 483.1, 483.8, 485, 486, 487.0, 507.0 3. Sepsis/Septicemia/Shock* - counted in the measure if coded in the principal or secondary discharge diagnosis field on the index admission. For readmissions, it is counted if coded in the principal or secondary discharge diagnosis field. Presence of one of the following diagnosis codes: 038, 038.0, 038.1, 038.10, 038.11, 038.12, 038.19, 038.2, 038.3, 038.4, 038.40, 038.41, 038.42, 038.43, 038.44, 038.49, 038.8, 038.9, 785.52, 785.59, 790.7, 995.91, 995.92, 998.0, 790.7, Complications identified from date of index admission to 30 days post date of index admission: 4. Pulmonary Embolism - counted in the measure if coded in the principal or secondary discharge diagnosis field on the index admission. For readmissions, it is counted if coded in the principal or secondary discharge diagnosis field. Presence of one of the following diagnosis codes: 415.1, 415.11, 415.19 5. Surgical Site Bleeding- counted in the measure if coded in the principal or secondary discharge diagnosis field on the index admission. For readmissions, it is counted if coded in the principal or secondary discharge diagnosis field. Presence of one of the following diagnosis codes: 998.1,998.11, 998.12, 998.13, 286.5, 719.10, 719.16, 719.17 AND the following procedure code: Incision and Drainage: 86.04 6. Death (Source: Medicare Enrollment Database) Complications identified from date of index admission to 90 days post date of index admission: 7. Wound Infection/ Periprosthetic Joint Infection** - counted in the measure if coded in the principal or secondary discharge diagnosis field on the index admission. For readmissions, it is counted if coded in the principal or secondary discharge diagnosis field. Presence of one of the following diagnosis codes: 998.6, 998.83, 998.3, 998.30, 998.31, 998.32, 998.33, 998.5, 998.51, 998.59, 996.67, 996.66

	1550 Hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)
	AND at least one of the following procedure codes: Incision and Drainage: 86.22, 86.28, 86.04 Revision: 81.53, 81.55, 81.59, 00.70, 00.71, 00.72, 00.73, 00.80, 00.81, 00.82, 00.83, 00.84 Removal: 80.05, 80.06, 80.09 8. Mechanical Complication- counted in the measure if coded in the secondary diagnosis field during the index admission. For readmissions, it is counted if coded in the principal or secondary diagnosis fields. Presence of one of the following diagnosis codes: 996.4, 996.40, 996.41, 996.42, 996.44, 996.47, 996.49 * Following a medical record validation study of this measure, we renamed the title of this complication to "Sepsis/Septicemia/Shock" because the measure specifications for sepsis include shock codes (ICD-9 codes 785.59 and 998.0) but this was not reflected in the title. Based on the validation study, we also removed ICD-9 code 998.59 from the specifications because it is a non-specific code that identified cases that were not true cases of sepsis. Please refer to section 2c, Validity Testing for details regarding the validation study. **Based on the validation study, we combined wound infection and periprosthetic joint infection outcomes into a single complication of wound infection/periprosthetic joint infection because it is often difficult to distinguish between the two complications, and the codes for both are used interchangeably. Furthermore, the follow-up periods for wound infection and periprosthetic joint infection are the same (90 days). Please refer to section 2c, Validity Testing for details regarding the validation study.
Denominator Statement	The target population for this measure includes admissions for patients at least 65 years of age undergoing elective primary THA and/or TKA procedures.
Denominator Categories	Female; Male 65 years of age and older
Denominator Details	Time Window: This measure was developed using claims data from calendar year 2007 and 2008. The time period for public reporting has not been determined. The denominator includes patients aged 65 and older admitted to non-federal acute care hospitals for an elective, primary THA and/or TKA in 2007 and 2008. Patients are eligible for inclusion in the denominator if they had a THA and/or a TKA AND had continuous enrollment in Medicare FFS one year prior to the date of index admission. This cohort is defined using the following ICD-9-CM procedure codes identified in Medicare Part A Inpatient claims data: 81.51 Total Hip Arthroplasty 81.54 Total Knee Arthroplasty
Exclusions	Patients will be excluded from the cohort if they meet any of the followed criteria: 1. Patients with hip fractures Presence of one of the following diagnosis codes: 733.1, 733.10, 733.14, 733.15, 733.19, 733.8, 733.81, 733.82, 733.95, 733.96, 733.97, 808.0, 808.1, 820.00, 820.01, 820.02, 820.03, 820.09, 820.10, 820.11, 820.12, 820.13, 820.19, 820.20, 820.21, 820.22, 820.30, 820.31, 820.32, 820.8, 820.9, 821, 821.0, 821.00, 821.01, 821.1, 821.10, 821.11 Rationale: Patients with hip fractures have higher mortality, complication and readmission rates and the procedure (THA) is not elective. 2. Patients undergoing revision procedures (with or without a concurrent THA/TKA) Presence of one of the following diagnosis codes: 81.53, 81.55, 81.59, 00.70, 00.71, 00.72, 00.73, 00.80, 00.81, 00.82, 00.83, 00.84 Rationale: Revision procedures may be performed at a disproportionately small number of hospitals and are associated with higher mortality, complication and readmission rates. 3. Patients undergoing partial hip arthroplasty procedures (with or without a concurrent THA/TKA) Presence of the following diagnosis code: 81.52 Rationale: Partial arthroplasties are primarily done for hip fractures and are typically performed on patients who are older, more frail, and with more comorbid conditions. 4. Patients undergoing resurfacing procedures (with or without a concurrent THA/TKA) Presence of one of the following diagnosis codes: 00.85, 00.86, 00.87 Rationale: Resurfacing procedures are a different type of procedure which are typically performed on younger, healthier patients. 5. Patients with a mechanical complication coded in the principal discharge diagnosis field of the index admission* Rationale: A complication coded in the principal field indicates it was present on admission, and these patients

	underwent an arthroplasty due to a complication related to a prior procedure. Furthermore, these patients may require more technically complex arthroplasty procedures, and may be at increased risk for complications, particularly mechanical complications. 6. Patients who are transferred in to the index hospital Rationale: If the patient is transferred from another acute care facility to the hospital where the index procedure occurs, it is likely that the procedure is not elective. 7. Patients who leave the hospital against medical advice (AMA) Rationale: Hospitals and physicians do not have the opportunity to provide the highest quality care. 8. Patients with more than two THA/TKA procedure codes during the index hospitalization Rationale: Patients with more than two procedure codes for THA/TKA are excluded because it is rare that a patient would have 3 arthroplasty procedures done at one time. This is likely to be a coding error. 9. Patients with multiple admissions for THA/TKA in the 12 months studied; one hospitalization per patient was randomly selected for inclusion after applying the other exclusion criteria Rationale: Observations are not independent; a patient is not eligible for the death outcome during the first admission if admitted later in the year for another procedure *Based on a medical record validation study of this measure, we also excluded patients with a mechanical complication coded in the *principal discharge diagnosis field of the index admission* because a complication coded in the principal field indicates it was present on admission. Furthermore, these patients represent more technically complex arthroplasty procedures, and may be at increased risk for complications, particularly mechanical complications. Please refer to section 2c, Validity Testing for details regarding the validation study.
Exclusion Details	See "Denominator Exclusion" section
Risk Adjustment	risk-adjustment devised specifically for this measure/condition The measure estimates hospital-level RSCRs using hierarchical logistic regression models. In brief, the approach simultaneously models outcomes at two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand et al., 2007). At the patient level, the model adjusts the log-odds of a complication for age, sex, and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of complication at the hospital, after accounting for case mix. If there were no differences among hospitals, then after adjusting for case mix, the hospital intercepts should be identical across all hospitals. The measure adjusts for key variables that were clinically relevant and had strong relationships with the outcome (e.g. demographic factors, disease severity indicators, and indicators of frailty). For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of the patient at the time of admission. We use condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis and procedure codes. Conditions that may represent adverse outcomes due to care received during the index admission are not considered for inclusion in the risk adjusted model. Although they may increase the risk of mortality and complications, including them as covariates in a risk-adjusted model could attenuate the measure's ability to characterize the quality of care delivered by hospitals. Hence, these conditions are not adjusted for if they only appear in the index admission and not in the 12 months prior to admission. The risk adjustment model included 33 variables which are listed below: Demographic 1. Age-65 (years above 65, continuous) 2. Sex THA/TKA Procedure 3. THA procedure 4. Number of procedures performed Clinical Risk Factors 5. Skeletal deformities (ICD-9 code 755.63) 6. Post traumatic osteoarthritis (ICD-9 codes 716.15, 716.16) 7. Morbid obesity (ICD-9 code 278.01) 8. Metastatic cancer and acute leukemia (CC 7) 9. Cancer (CC 8-10) 10. Respiratory/Heart/Digestive/Urinary/Other Neoplasms (CC 11-13)

	1550 Hospital-level risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)
	11. Diabetes and DM complications (CC 15-20,119,120) 12. Protein-calorie malnutrition (CC 21) 13. Bone/Joint/Muscle Infections/Necrosis (CC 37) 14. Rheumatoid Arthritis and Inflammatory Connective Tissue Disease (CC 38) 15. Osteoarthritis of hip and knee (CC 40) 16. Osteoporosis and Other Bone/Cartilage Disorders (CC 41) 17. Dementia and senility (CC 49, 50) 18. Major psychiatric disorders (CC 54-56) 19. Hemiplegia, paraplegia, paralysis, function disability (CC 67-69, 100-102, 177-178) 20. Cardio-respiratory failure and shock (CC 79) 21. Chronic atherosclerosis (CC 83-84) 22. Stroke (CC 95, 96) 23. Vascular or circulatory disease (CC 104-106) 24. COPD (CC 108) 25. Pneumonia (CC 111-113) 26. Pleural effusion/pneumothorax (CC 114) 27. End-stage renal disease or dialysis (CC 129, 130) 28. Renal Failure (CC 131) 29. Decubitus ulcer or chronic skin ulcer (CC 148, 149) 30. Trauma (CC 154-156,158-161) 31. Vertebral Fractures (CC 157) 32. Other injuries (CC 162) 33. Major complications of medical care and trauma (CC 164) Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Attachment THA-TKA Complications Technical Report.pdf
Stratification	This measure is not stratified.
Type Score	Rate/proportion better quality = lower score
Algorithm	The RSCR is calculated as the ratio of the number of "predicted" to the number of "expected" complications, multiplied by the national unadjusted complication rate. For each hospital, the "numerator" of the ratio is the number of complications predicted on the basis of the hospital's performance with its observed case mix, and the "denominator" is the number of complications expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case-mix to an average hospital's performance with the same case-mix. Thus a lower ratio indicates lower-than-expected complication or better quality and a higher ratio indicates higher-than-expected complication or worse quality. The predicted hospital outcome (the numerator) is calculated by regressing the risk factors and the hospital-specific intercept on the risk of complications, multiplying the estimated regression coefficients by the patient characteristics in the hospital, transforming, and then summing over all patients attributed to the hospital to get a value. The expected number of complications (the denominator) is obtained by regressing the risk factors and a common intercept on the complications outcome using all hospitals in our sample, multiplying the subsequent estimated regression coefficients by the patient characteristics observed in the hospital, transforming, and then summing over all patients in the hospital to get a value. Please see attachment for more details on the calculation algorithm.

	1551 Hospital-level 30-day all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)
Steward	Centers for Medicare & Medicaid Services | 7500 Security Boulevard, Mail Stop S3-01-02 | Baltimore | Maryland | 21244-1850
Description	This measure estimates hospital 30-day RSRRs following elective primary THA and TKA in patients 65 years and older. The measure uses Medicare claims data to develop a hospital-level RSRR for THA and TKA and will include patients readmitted for any reason within 30 days of discharge date of the index admission. Some patients are admitted within 30 days of the index hospitalization to undergo another elective THA/TKA procedure. These are considered planned readmissions and are NOT counted in the measure as readmissions.

	1551 Hospital-level 30-day all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)
Type	Outcome
Data Source	Electronic administrative data/claims We obtained index admission, readmission, and in-hospital comorbidity data from Medicare's Standard Analytic File (SAF). Comorbidities were also assessed using Part A inpatient, outpatient, and Part B office visit Medicare claims in the 12 months prior to index admission. Enrollment and post-discharge mortality status were obtained from Medicare's enrollment database which contains beneficiary demographic, benefit/coverage, and vital status information. 1. 2008 Part A (inpatient) data Part A inpatient data includes claims for Medicare inpatient hospital care, skilled nursing facility care, some home health agency services, and hospice care. For purposes of this project, Part A is used to refer to inpatient services only and includes data from 2 time periods: a. Index admission: Index admission data are based on the inclusion/exclusion criteria for THA/TKA, and comorbidities (if any) are identified from the secondary diagnoses associated with the index admission. b. Pre-index: 12 months prior to the index admission ("pre-index"). 2. 2008 Part A (outpatient) data – 12 months pre-index Hospital outpatient refers to Medicare claims paid for the facility component of surgical or diagnostic procedures, emergency room care, and other non-inpatient services performed in a hospital outpatient department or ambulatory surgical/diagnostic center. 3. Part B data – 12 months pre-index Part B data refers to Medicare claims for the services of physicians (regardless of setting) and other outpatient care, services, and supplies. For purposes of this project, Part B services included only face-to-face encounters between a care provider and patient. We thus do not include services such as laboratory tests, medical supplies, or other ambulatory services. URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1182785083979 N/A
Level	Facility/Agency
Setting	Hospital
Numerator Statement	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); thus, we are using this field to define readmissions. The outcome for this measure is a readmission to any acute care hospital, for any reason occurring within 30 days of the discharge date of the index hospitalization. We do not count planned readmissions in the outcome (see numerator details).
Numerator Details	Time Window: 30 days from discharge date of index hospitalization A readmission to any acute care hospital for any reason within 30 days of the discharge date of index hospitalization. Planned (elective) readmissions: We do not count readmissions in the measure that are associated with a subsequent "planned" THA/TKA procedure within 30-days of discharge from index hospitalization. Some patients may elect to stage their orthopedic replacement procedures across hospitalizations (for example, a patient may have the left and right knees replaced within one or two weeks of each other, potentially across multiple hospitalizations). In consultation with an expert panel we define planned readmissions as a second admission with an ICD-9 procedure code for THA or TKA AND a principal discharge diagnosis of osteoarthritis, rheumatoid arthritis, osteonecrosis, or arthropathy (excluding septic arthropathy). The criteria for identifying a subsequent planned THA and/or TKA is as follows: 1. Admission with at least one of the following ICD-9 procedure codes within 30 days of discharge date of index hospitalization: • 81.51 – Primary total hip replacement • 81.54 – Primary total knee replacement, AND 2. A principal diagnosis code of one the following ICD-9 codes for osteoarthritis, rheumatoid arthritis, osteonecrosis, or arthropathy: • 714, 714.0, 714.1, 714.2, 714.3, 714.30, 714.31, 714.32, 714.33, 714.4, 714.8, 714.89, 714.9, 715, 715.0, 715.00, 715.09, 715.1, 715.10, 715.15, 715.16, 715.18, 715.2, 715.20, 715.25, 715.26, 715.28, 715.3, 715.30, 715.35, 715.36, 715.38, 715.8, 715.80, 715.89, 715.9, 715.90, 715.95, 715.96, 715.98, 716.5, 716.50, 716.55, 716.56, 716.58,

	1551 Hospital-level 30-day all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)
	716.59, 716.8, 716.80, 716.85, 716.86, 716.88, 716.89, 716.9, 716.90, 716.95, 716.96, 716.98, 716.99, 733.42, 733.43
Denominator Statement	The target population for this measure includes admissions for patients at least 65 years of age undergoing primary THA and/or TKA procedures.
Denominator Categories	Female; Male 65 years of age and older
Denominator Details	Time Window: This measure was developed using claims data from calendar year 2007 and 2008. The time period for public reporting has not been determined. The denominator includes patients aged 65 and older admitted to non-federal acute care hospitals for an elective, primary THA and/or TKA in 2007 and 2008. Patients are eligible for inclusion in the denominator if they had a THA and/or a TKA AND had continuous enrollment in Medicare FFS one year prior to the date of index admission. This cohort is defined using the following ICD-9-CM procedure codes identified in Medicare Part A Inpatient claims data: 81.51 Total Hip Arthroplasty 81.54 Total Knee Arthroplasty
Exclusions	Patients will be excluded from the cohort if they meet any of the followed criteria: 1. Patients with hip fractures Presence of one of the following diagnosis codes: 733.1, 733.10, 733.14, 733.15, 733.19, 733.8, 733.81, 733.82, 733.95, 733.96, 733.97, 808.0, 808.1, 820.00, 820.01, 820.02, 820.03, 820.09, 820.10, 820.11, 820.12, 820.13, 820.19, 820.20, 820.21, 820.22, 820.30, 820.31, 820.32, 820.8, 820.9, 821, 821.0, 821.00, 821.01, 821.1, 821.10, 821.11 Rationale: Patients with hip fractures have higher mortality, complication and readmission rates and the procedure (THA) is generally not elective. 2. Patients undergoing revision procedures (with or without a concurrent THA/TKA) Presence of one of the following procedure codes: 81.53, 81.55, 81.59, 00.70, 00.71, 00.72, 00.73, 00.80, 00.81, 00.82, 00.83, 00.84 Rationale: Revision procedures may be performed at a disproportionately small number of hospitals and are associated with higher mortality, complication, and readmission rates. 3. Patients undergoing partial hip arthroplasty procedures (with or without a concurrent THA/TKA) Presence of the following procedure code: 81.52 Rationale: Partial arthroplasties are primarily done for hip fractures and are typically performed on patients who are older, more frail, and with more comorbid conditions. 4. Patients undergoing resurfacing procedures (with or without a concurrent THA/TKA) Presence of one of the following procedure codes: 00.85, 00.86, 00.87 Rationale: Resurfacing procedures are a different type of procedure which are typically performed on younger, healthier patients. 5. Patients with a mechanical complication coded in the principal discharge diagnosis field of the index admission* Rationale: A complication coded in the principal field indicates it was present on admission, and these patients underwent an arthroplasty due to a complication related to a prior procedure. Furthermore, these patients may require more technically complex arthroplasty procedures, and may be at increased risk for complications, particularly mechanical complications. 6. Patients without at least 30-days post-discharge enrollment in Medicare Rationale: The 30-day readmission outcome cannot be assessed for the standardized time period. 7. Patients who are transferred in to the index hospital Rationale: If the patient is transferred from another acute care facility to the hospital where the index procedure occurs, it is likely that the procedure is not elective. 8. Patients who were admitted for the index procedure and subsequently transferred to another acute care facility Rationale: Attribution of readmission to the index hospital would not be possible in these cases, since the index hospital performed the procedure but another hospital discharged the patient to the non-acute care setting. 9. Patients who leave against medical advice (AMA) Rationale: Hospitals and physicians do not have the opportunity to provide the highest quality care for these patients. 10. Patients with more than two THA/TKA procedures codes during the index hospitalization Rationale: Patients with more than two procedure codes for THA/TKA are excluded because it is rare that a patient would have 3 arthroplasty procedures done at one time. This is likely to be a coding error. 11. Patients who die during the index admission

	1551 Hospital-level 30-day all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)
	Rationale: Patients who die during the initial hospitalization are not eligible for readmission. Additional otherwise qualifying THA and/or TKA admissions that occurred within 30 days of discharge date of an earlier index admission are not considered as index admission. They are considered as potential readmissions. Any THA and/or TKA admission is either an index admission or a potential readmission, but not both. * Based on a medical record validation study of the paired hospital risk-standardized complications measure, we also excluded patients with a mechanical complication coded in the *principal discharge diagnosis field of the index admission* because a complication coded in the principal field indicates it was present on admission. Furthermore, these patients represent more technically complex arthroplasty procedures, and may be at increased risk for readmission, particularly for mechanical complications. Prior to this cohort exclusion, there were 295,224 patients in the readmission measure cohort (2008). After excluding from the measure cohort, the patients who had a mechanical complication coded in the principal discharge diagnosis field on the index admission, the number of patients in the cohort decreased by 930 patients to 294,292 (less than 0.5% decrease). The hospital risk-standardized mean readmission rate prior to this cohort exclusion was 6.25% (range 3.03 to 50.97%). The hospital risk-standardized mean readmission rate after this cohort exclusion increased slightly to 6.27% (range 3.06 to 50.72%). Thus, the additional cohort exclusion has a minimal effect on the hospital risk-standardized mean readmission rate, but the range of the rate still shows significant variation in hospital readmission rates. Details regarding the validation study are provided in the NQF application for the paired hospital risk-standardized complications measure (section 2c, Validity Testing)
Exclusion Details	See “Denominator Exclusion” section
Risk Adjustment	risk-adjustment devised specifically for this measure/condition The measure estimates hospital-level 30-day all-cause RSRRs using hierarchical logistic regression models. In brief, the approach simultaneously models outcomes at two levels (patient and hospital) to account for the variance in patient outcomes within and between hospitals (Normand et al., 2007). To model the log-odds of 30-day all-cause readmission at the patient level, the model adjusts for age, sex, and selected clinical covariates. The second level models the hospital-specific intercepts as arising from a normal distribution. The hospital intercept represents the underlying risk of readmission at the hospital, after accounting for case mix. If there were no differences among hospitals, then after adjusting for case mix, the hospital intercepts should be identical across all hospitals. The measure adjusts for key variables that are clinically relevant and have strong relationships with the outcome (e.g. demographic factors, disease severity indicators, and indicators of frailty). For each patient, covariates are obtained from Medicare claims extending 12 months prior to and including the index admission. The model adjusts for case mix differences based on the clinical status of the patient at the time of admission. We use condition categories (CCs), which are clinically meaningful groupings of more than 15,000 ICD-9-CM diagnosis and procedure codes. We do not risk-adjust for CCs that are possible adverse events of care and that are only recorded in the index admission. In addition, only comorbidities that convey information about the patient at that time or in the 12-months prior, and not complications that arise during the course of the hospitalization are included in the risk-adjustment. The risk adjustment model included 33 variables which are listed below: Demographics 1. Age-65 (years above 65, continuous) 2. Sex TKA/THA Procedure 3. THA procedure 4. Number of procedures (2 vs.1) Clinical Risk Factors 5. History of Infection (CC 1, 3-6) 6. Metastatic cancer and acute leukemia (CC 7) 7. Cancer (CC 8-12) 8. Diabetes and DM complications (CC 15-20, 119, 120) 9. Protein-calorie malnutrition (CC 21) 10. Disorders of Fluid/Electrolyte/Acid-Base (CC 22, 23) 11. Rheumatoid Arthritis and Inflammatory Connective Tissue Disease (CC 38) 12. Severe Hematological Disorders (CC 44) 13. Dementia and senility (CC 49, 50)

	1551 Hospital-level 30-day all-cause risk-standardized readmission rate (RSRR) following elective primary total hip arthroplasty (THA) and total knee arthroplasty (TKA)
	14. Major psychiatric disorders (CC 54-56) 15. Hemiplegia, paraplegia, paralysis, functional disability (CC 67-69, 100-102, 177-178) 16. Polyneuropathy (CC 71) 17. Congestive Heart Failure (CC 80) 18. Chronic Atherosclerosis (CC 83-84) 19. Hypertension (CC 89, 91) 20. Arrhythmias (CC 92, 93) 21. Stroke (CC 95, 96) 22. Vascular or circulatory disease (CC 104-106) 23. COPD (CC 108) 24. Pneumonia (CC 111-113) 25. End-stage renal disease or dialysis (CC 129, 130) 26. Renal Failure (CC 131) 27. Decubitus ulcer or chronic skin ulcer (CC 148, 149) 28. Cellulitis, Local Skin Infection (CC 152) 29. Other Injuries (CC162) 30. Major Symptoms, Abnormalities (CC 166) 31. Skeletal Deformities (ICD-9 code 755.63) 32. Post Traumatic Osteoarthritis (ICD-9 codes 716.15, 716.16) 33. Morbid Obesity (ICD-9 code 278.01) Normand S-LT, Shahian DM. 2007. Statistical and Clinical Aspects of Hospital Outcomes Profiling. Stat Sci 22 (2): 206-226. Attachment THA-TKA Readmission Technical Report.pdf
Stratification	This measure is not stratified.
Type Score	Rate/proportion better quality = lower score
Algorithm	The RSRR is calculated as the ratio of the number of "predicted" to the number of "expected" readmissions, multiplied by the national unadjusted readmission rate. For each hospital, the "numerator" of the ratio is the number of readmissions within 30 days predicted on the basis of the hospital's performance with its observed case mix, and the "denominator" is the number of readmissions expected on the basis of the nation's performance with that hospital's case mix. This approach is analogous to a ratio of "observed" to "expected" used in other types of statistical analyses. It conceptually allows for a comparison of a particular hospital's performance given its case-mix to an average hospital's performance with the same case-mix. Thus a lower ratio indicates lower-than-expected readmission or better quality and a higher ratio indicates higher-than-expected readmission or worse quality. The predicted hospital outcome (the numerator) is calculated by regressing the risk factors and the hospital-specific intercept on the risk of readmission, multiplying the estimated regression coefficients by the patient characteristics in the hospital, transforming, and then summing over all patients attributed to the hospital to get a value. The expected number of readmissions (the denominator) is obtained by regressing the risk factors and a common intercept on the readmission outcome using all hospitals in our sample, multiplying the subsequent estimated regression coefficients by the patient characteristics observed in the hospital, transforming, and then summing over all patients in the hospital to get a value. Please see attachment for more details on the calculation algorithm.

	1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery
Steward	American Academy of Ophthalmology and Hoskins Center for Quality Eye Care | 655 Beach Street | San Francisco | California, 94109-1336
Description	Percentage of patients aged 18 years and older who had cataract surgery and had improvement in visual function achieved within 90 days following the cataract surgery
Type	Outcome
Data Source	Patient Reported Data/Survey The data collection instrument is specified as an assessment tool that has been appropriately validated for the population for which it being used. Examples of tools for visual function assessment include, but are not limited to: National Eye Institute-Visual Function Questionnaire (VFQ), the Visual Function (VF)-14, the modified VF-8, the Activities of Daily Vision Scale (ADVS), the Catquest and the modified Catquest-9. For this measure, we are proposing the Rasch-scaled short version of the VF-14, otherwise referred to as the VF-8R hereafter. Attachment VF8 Pesudovs.pdf

	1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery
Level	Clinician: Individual
Setting	Ambulatory Care: Ambulatory Surgery Center (ASC), Ambulatory Care: Clinic/Urgent Care, Ambulatory Care: Clinician Office
Numerator Statement	Patients 18 years and older in sample who had improvement in visual function achieved within 90 days following cataract surgery, based on completing a pre-operative and post-operative visual function instrument
Numerator Details	Time Window: One year Patients 18 years and older in sample who had an improvement in their visual function achieved within 90 days following cataract surgery Patients in sample who completed a pre-operative and post-operative visual function instrument, and with the CPT Procedure Codes (with or without modifiers): 66840, 66850, 66852, 66920, 66930, 66940, 66982, 66983, 66984
Denominator Statement	All patients aged 18 years and older in sample who had cataract surgery
Denominator Categories	Female; Male 18 years and older
Denominator Details	Time Window: One year Denominator (Eligible Population): All patients aged 18 years and older in sample who had cataract surgery • CPT Procedure Codes (with or without modifiers): 66840, 66850, 66852, 66920, 66930, 66940, 66982, 66983, 66984
Exclusions	
Exclusion Details	
Risk Adjustment	no risk adjustment necessary A risk adjustment methodology is not necessary if the stratification schema is utilized, as described above.
Stratification	This measure can be stratified into two major groups: those patients with ocular co-morbidities and those patients without ocular co-morbidities. An improvement in visual function after cataract surgery would be expected in both groups, however the magnitude of the difference would vary by group. The Cataract Patient Outcomes Research Team found that an important preoperative patient characteristic that was independently associated with failure to improve on one of the outcomes measured (including the VF-14) was ocular comorbidity. The authors explained that this was expected, because it is reasonable to assume that other diseases that impair visual function would be correlated with a reduced improvement in functional status. The National Eye Care Outcomes Network also found that there were differences in the mean postooperative VF-14 scores across groups of patients with and without ocular co-morbidities, as seen in the table below. The study involving the Rasch-scaled short version of the VF-14 also found differences between the preoperative and postoperative visual function test scores and differences between preoperative and postoperative visual function tests, as seen below. National Eyecare Outcomes Network Mean VF-14 (postoperative) - Total 92.7 - With ocular comorbidity 89.9 - Without ocular comorbidity 94.6 Rasch-Scaled Short Version of the VF-14 Patients without Ocular Comorbidity - Preop VF-8R - 68.87 Postop VF-8R - 86.22 Mean Diff = 17.35 Patients with Ocular Comorbidity - Preop VF-8R - 67.71 Postop VF-8R - 81.58 Mean Diff = 13.87 A list of codes for comorbidities can be found in the AMA PCPI measure for 20/40 visual acuity after cataract surgery: Acute and subacute iridocyclitis 364.00 Acute and subacute iridocyclitis 364.01 Acute and subacute iridocyclitis 362.02 Acute and subacute iridocyclitis 364.03

	1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery
	Acute and subacute iridocyclitis 364.04
	Acute and subacute iridocyclitis 364.05
	Amblyopia 368.01
	Amblyopia 368.02
	Amblyopia 368.03
	Burn confined to eye and adnexa 940.0
	Burn confined to eye and adnexa 940.1
	Burn confined to eye and adnexa 940.2
	Burn confined to eye and adnexa 940.3
	Burn confined to eye and adnexa 940.4
	Burn confined to eye and adnexa 940.5
	Burn confined to eye and adnexa 940.9
	Cataract secondary to ocular disorders 366.32
	Cataract secondary to ocular disorders 366.33
	Certain types of iridocyclitis 364.21
	Certain types of iridocyclitis 364.22
	Certain types of iridocyclitis 364.23
	Certain types of iridocyclitis 364.24
	Certain types of iridocyclitis 364.3
	Choroidal degenerations 363.43
	Choroidal detachment 363.72
	Choroidal hemorrhage and rupture 363.61
	Choroidal hemorrhage and rupture 363.62
	Choroidal hemorrhage and rupture 363.63
	Chorioretinal scars 363.30
	Chorioretinal scars 363.31
	Chorioretinal scars 363.32
	Chorioretinal scars 363.33
	Chorioretinal scars 363.35
	Chronic iridocyclitis 364.10
	Chronic iridocyclitis 364.11
	Cloudy cornea 371.01
	Cloudy cornea 371.02
	Cloudy cornea 371.03
	Cloudy cornea 371.04
	Corneal edema 371.20
	Corneal edema 371.21
	Corneal edema 371.22
	Corneal edema 371.23
	Corneal edema 371.43
	Corneal edema 371.44
	Corneal opacity and other disorders of cornea 371.00
	Corneal opacity and other disorders of cornea 371.03
	Corneal opacity and other disorders of cornea 371.04
	Degenerative disorders of globe 360.20
	Degenerative disorders of globe 360.21
	Degenerative disorders of globe 360.23
	Degenerative disorders of globe 360.24
	Degenerative disorders of globe 360.29
	Degeneration of macula and posterior pole 362.50
	Degeneration of macula and posterior pole 362.51
	Degeneration of macula and posterior pole 362.52
	Degeneration of macula and posterior pole 362.53
	Degeneration of macula and posterior pole 362.54
	Degeneration of macula and posterior pole 362.55

	1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery
	Degeneration of macula and posterior pole 362.56 Degeneration of macula and posterior pole 362.57 Disseminated chorioretinitis and disseminated retinochoroiditis 363.10 Disseminated chorioretinitis and disseminated retinochoroiditis 363.11 Disseminated chorioretinitis and disseminated retinochoroiditis 363.12 Disseminated chorioretinitis and disseminated retinochoroiditis 363.13 Disseminated chorioretinitis and disseminated retinochoroiditis 363.14 Disseminated chorioretinitis and disseminated retinochoroiditis 363.15 Diabetic retinopathy 362.01 Diabetic retinopathy 362.02 Diabetic retinopathy 362.03 Diabetic retinopathy 362.04 Diabetic retinopathy 362.05 Diabetic retinopathy 362.06 Diabetic macular edema 362.07 Disorders of optic chiasm 377.51 Disorders of optic chiasm 377.52 Disorders of optic chiasm 377.53 Disorders of optic chiasm 377.54 Disorders of visual cortex 377.75 Focal chorioretinitis and focal retinochoroiditis 363.00 Focal chorioretinitis and focal retinochoroiditis 363.01 Focal chorioretinitis and focal retinochoroiditis 363.03 Focal chorioretinitis and focal retinochoroiditis 363.04 Focal chorioretinitis and focal retinochoroiditis 363.05 Focal chorioretinitis and focal retinochoroiditis 363.06 Focal chorioretinitis and focal retinochoroiditis 363.07 Focal chorioretinitis and focal retinochoroiditis 363.08 Glaucoma 365.10 Glaucoma 365.11 Glaucoma 365.12 Glaucoma 365.13 Glaucoma 365.14 Glaucoma 365.15 Glaucoma 365.20 Glaucoma 365.21 Glaucoma 365.22 Glaucoma 365.23 Glaucoma 365.24 Glaucoma 365.31 Glaucoma 365.32 Glaucoma 365.51 Glaucoma 365.52 Glaucoma 365.59 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.41 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.42 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.43 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.44 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.60 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.61 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.62 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.63 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.64 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.65 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.81

	1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery
	Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.82 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.83 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.89 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.9 Hereditary corneal dystrophies 371.50 Hereditary corneal dystrophies 371.51 Hereditary corneal dystrophies 371.52 Hereditary corneal dystrophies 371.53 Hereditary corneal dystrophies 371.54 Hereditary corneal dystrophies 371.55 Hereditary corneal dystrophies 371.56 Hereditary corneal dystrophies 371.57 Hereditary corneal dystrophies 371.58 Hereditary choroidal dystrophies 363.50 Hereditary choroidal dystrophies 363.51 Hereditary choroidal dystrophies 363.52 Hereditary choroidal dystrophies 363.53 Hereditary choroidal dystrophies 363.54 Hereditary choroidal dystrophies 363.55 Hereditary choroidal dystrophies 363.56 Hereditary choroidal dystrophies 363.57 Hereditary retinal dystrophies 362.70 Hereditary retinal dystrophies 362.71 Hereditary retinal dystrophies 362.72 Hereditary retinal dystrophies 362.73 Hereditary retinal dystrophies 362.74 Hereditary retinal dystrophies 362.75 Hereditary retinal dystrophies 362.76 High myopia 360.20 High myopia 360.21 Injury to optic nerve and pathways 950.0 Injury to optic nerve and pathways 950.1 Injury to optic nerve and pathways 950.2 Injury to optic nerve and pathways 950.3 Injury to optic nerve and pathways 950.9 Keratitis 370.03 Moderate or severe impairment, better eye, profound impairment lesser eye 369.10 Moderate or severe impairment, better eye, profound impairment lesser eye 369.11 Moderate or severe impairment, better eye, profound impairment lesser eye 369.12 Moderate or severe impairment, better eye, profound impairment lesser eye 369.13 Moderate or severe impairment, better eye, profound impairment lesser eye 369.14 Moderate or severe impairment, better eye, profound impairment lesser eye 369.15 Moderate or severe impairment, better eye, profound impairment lesser eye 369.16 Moderate or severe impairment, better eye, profound impairment lesser eye 369.17 Moderate or severe impairment, better eye, profound impairment lesser eye 369.18 Nystagmus and iother irregular eye movements 379.51 Open wound of eyeball 871.0 Open wound of eyeball 871.1 Open wound of eyeball 871.2 Open wound of eyeball 871.3 Open wound of eyeball 871.4 Open wound of eyeball 871.5 Open wound of eyeball 871.6 Open wound of eyeball 871.7 Open wound of eyeball 871.9

	1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery
	Optic atrophy 377.10 Optic atrophy 377.11 Optic atrophy 377.12 Optic atrophy 377.13 Optic atrophy 377.14 Optic atrophy 377.15 Optic atrophy 377.16 Optic neuritis 377.30 Optic neuritis 377.31 Optic neuritis 377.32 Optic neuritis 377.33 Optic neuritis 377.34 Optic neuritis 377.39 Other background retinopathy and retinal vascular changes 362.12 Other background retinopathy and retinal vascular changes 362.16 Other background retinopathy and retinal vascular changes 362.18 Other corneal deformities 371.70 Other corneal deformities 371.71 Other corneal deformities 371.72 Other corneal deformities 371.73 Other disorders of optic nerve 377.41 Other disorders of sclera 379.11 Other disorders of sclera 379.12 Other endophthalmitis 360.11 Other endophthalmitis 360.12 Other endophthalmitis 360.13 Other endophthalmitis 360.14 Other endophthalmitis 360.19 Other retinal disorders 362.81 Other retinal disorders 362.82 Other retinal disorders 362.83 Other retinal disorders 362.84 Other retinal disorders 362.85 Other retinal disorders 362.89 Other and unspecified forms of chorioretinitis and retinochoroiditis 363.20 Other and unspecified forms of chorioretinitis and retinochoroiditis 363.21 Other and unspecified forms of chorioretinitis and retinochoroiditis 363.22 Prior penetrating keratoplasty 371.60 Prior penetrating keratoplasty 371.61 Prior penetrating keratoplasty 371.62 Profound impairment, both eyes 369.00 Profound impairment, both eyes 369.01 Profound impairment, both eyes 369.02 Profound impairment, both eyes 369.03 Profound impairment, both eyes 369.04 Profound impairment, both eyes 369.05 Profound impairment, both eyes 369.06 Profound impairment, both eyes 369.07 Profound impairment, both eyes 369.08 Purulent endophthalmitis 360.00 Purulent endophthalmitis 360.01 Purulent endophthalmitis 360.02 Purulent endophthalmitis 360.03 Purulent endophthalmitis 360.04 Retinal detachment with retinal defect 361.00

	1536 Cataracts: Improvement in patient's visual function within 90 days following cataract surgery
	Retinal detachment with retinal defect 361.01 Retinal detachment with retinal defect 361.02 Retinal detachment with retinal defect 361.03 Retinal detachment with retinal defect 361.04 Retinal detachment with retinal defect 361.05 Retinal detachment with retinal defect 361.06 Retinal detachment with retinal defect 361.07 Retinal vascular occlusion 362.31 Retinal vascular occlusion 362.32 Retinal vascular occlusion 362.35 Retinal vascular occlusion 362.36 Retinopathy of prematurity 362.21 Scleritis and episcleritis 379.04 Scleritis and episcleritis 379.05 Scleritis and episcleritis 379.06 Scleritis and episcleritis 379.07 Scleritis and episcleritis 379.09 Separation of retinal layers 362.41 Separation of retinal layers 362.42 Separation of retinal layers 362.43 Uveitis 360.11 Uveitis 360.12 Visual field defects 368.41 References: 1. Schein OD, Steinberg EP, Cassard SD et al. Predictors of outcome in patients who underwent cataract surgery. Ophthalmology 1995; 102:817-23. 2. Lum F, Schachat AP, Jampel HD.The development and demise of a cataract surgery database. Jt Comm J Qual Improv. 2002 Mar;28(3):108-14. 3. Gothwal VK, Wright TA, Lamoureux EL, Pesudovs K. Measuring outcomes of cataract surgery using the Visual Function Index-14. J Cataract Refract Surg 2010; 36:1181-8.
Type Score	Rate/proportion better quality = higher score
Algorithm	The calculation of the measure would be determination of the number of patients in the sample who demonstrated improvement in visual function based on the pre-operative and post-operative visual function instrument over the number of patients in the sample who had cataract surgery. Currently in the scientific literature, there is no well-established method to define a threshold or interval that indicates improvement on the VF-8R. The Rasch scale has found to be more sensitive to change than the VF-14 in longitudinal studies and has a different scale for scoring than the VF-14. The VF-14 is based on summative scoring, which has no rationale for how numerical values are assigned and how a summary score is produced, and does not give a sense of the degree of change. The Rasch model is based on Item Response theory,which is based on item difficulty in relationship to an individual´s ability and weighs the overall score accordingly, providing a gain in precision. Thus any difference between the pre-operative and post-operative scores on the VF-8R would indicate an improvement in functional activities. The average difference found between pre-operative and post-operative assessment on the VF-8R was 15.39 (Standard error = 2.66). In the literature, there have been two studies looking at the clinically important differences for the VF-14 index. One study found that the minimal clinically important difference was 15.57; another study found that the minimally clinically important difference was 5.5. References: 1. Bilbao A, Quintana JM, Escobar A et al. Responsiveness and Clinically Important Differences for the VF-14 Index, SF-36 and Visual Acuity in Patients Undergoing Cataract Surgery. Ophthalmology 2009; 116:418-424. 2. Las Hayas C, Bilbao A, Quintana J et al. A comparison of standard scoring versus Rasch scoring of the Visual Function-14 in patients with cataracts. IOVS 2011 in press.

	1741 Patient experience with surgical care based on the consumer assessment of healthcare providers and systems (CAHPS) ® surgical care survey

	1741 Patient experience with surgical care based on the consumer assessment of healthcare providers and systems (CAHPS) ® surgical care survey
Steward	American College of Surgeons
Description	The following 6 composites and 1 single-item measure are generated from the Consumer Assessment of Healthcare Providers and Systems (CAHPS®) Surgical Care Survey. Each measure is used to assess a particular domain of surgical care quality from the patient's perspective. Measure 1: Information to help you prepare for surgery (2 items) Measure 2: How well surgeon communicates with patients before surgery (4 items) Measure 3: Surgeon's attentiveness on day of surgery (2 items) Measure 4: Information to help you recover from surgery (4 items) Measure 5: How well surgeon communicates with patients after surgery (4 items) Measure 6: Helpful, courteous, and respectful staff at surgeon's office (2 items) Measure 7: Rating of surgeon (1 item) The Consumer Assessment of Healthcare Providers and Systems (CAHPS®) Surgical Care Survey is administered to adult patients (age 18 and over) having had a major surgery as defined by CPT codes (90 day globals) within 3 to 6 months prior to the start of the survey.
Type	Composite
Data Source	Survey-patient
Level	Clinicians: Individual, Group
Setting	Ambulatory Care: Ambulatory Surgery Center, Office, Clinic, Hospital Outpatient
Numerator Statement	We recommend that CAHPS Surgical Survey composites be calculated using a top-box scoring method. The top box score refers to the percentage of patients whose responses indicated excellent performance for a given measure. This approach is a kind of categorical scoring because the emphasis is on the score for a specific category of responses. The composite measures do not have a typical numerator. This section is used to describe the composite score. The composite score is the average proportion of respondents who answered the most positive response category across the questions in the composite. The top box numerators for items within Composite measures 1, 2, 4, 5, and 6 is the number of respondents who answered "Yes, definitely" across the items in each composite. The top box composite score is the average proportion of respondents who answered "Yes, definitely" across the items in the composite. The top box numerator for items within Composite measure 3 is the number of respondents who answered "Yes" across the items in this composite. The top box composite score is the average proportion of respondents who answered "Yes" across the items in this composite. The top box numerator for the Measure 7, the Global Rating Item, is the number of respondents who answered 9 or 10 to the Global Rating Item. Note that for users who want to case-mix adjust their scores, case-mix adjustment can be done using the CAHPS macro and the adjustment is made prior to the calculation of the total score. For more, see section 2e.2. See also Attachment H: Reporting Measures for the CAHPS Surgical Care Survey.
Numerator Details	Time Window: Respondents assess their experience with surgical care before, on the day of, and after the target procedure as defined in the denominator. There are three basic steps to this approach: 1. Calculate the proportion of patient responses in the top box or most positive response category for each item in a composite. 2. Calculate the mean top box proportions across all items in a composite to determine the composite's top box score. The following steps show how top box scores are calculated: *Step 1 – Calculate the proportion of cases in the top box or most positive response for the each item in a composite* Composite 1 "Information To Help You Prepare For Surgery" (2 items) has three response options: Yes, definitely Yes, somewhat No The top box percentage for each item in this composite is only the proportion of respondents who answered "Yes, definitely."

PItem 1 = Proportion of respondents who answered "Yes, definitely" = 80%
PItem 2 = Proportion of respondents who answered "Yes, definitely"= 90%

Step 2 – Average the top box item scores to form the overall composite top box score
Calculate the average top box score across the items in the composite. In the above example, the calculation would be as follows:

Top box score for Composite 1 = Proportion responding "yes, definitely" =
(PItem1 + PItem2) / 2 = (80% + 90%) / 2 = 85%.

A total of 19 questions comprise 6 composite measures and one single item measure, as follows:

1. Information To Help You Prepare For Surgery

Q3	A health provider could be a doctor, nurse, or anyone else you would see for health care. Before your surgery, did anyone in this surgeon's office give you all the information you needed about your surgery?	Response Options Yes, definitely Yes, somewhat No
Q4	Before your surgery, did anyone in this surgeon's office give you easy to understand instructions about getting ready for your surgery?	

2. How Well Surgeon Communicates With Patients Before Surgery

Q9	During your office visits before your surgery, did this surgeon listen carefully to you?	Response Options Yes, definitely Yes, somewhat No
Q10	During your office visits before your surgery, did this surgeon spend enough time with you?	
Q11	During your office visits before your surgery, did this surgeon encourage you to ask questions?	
Q12	During your office visits before your surgery, did this surgeon show respect for what you had to say?	

3. Surgeon's Attentiveness On Day of Surgery

Q15	After you arrived at the hospital or surgical facility, did this surgeon visit you before your surgery?	Response Options Q15 Yes No Q17 Yes No Don't know (Note: Don't know responses are treated as missing)
Q17	Before you left the hospital or surgical facility, did this surgeon discuss the outcome of your surgery with you?	

4. Information to Help You Recover From Surgery

Q26	Did anyone in this surgeon's office explain what to expect during your recovery period?	Response Options Yes, definitely Yes, somewhat No
Q27	Did anyone in this surgeon's office warn you about any signs or symptoms that would need immediate medical attention	

<table>
<tr><td></td><td>1741 Patient experience with surgical care based on the consumer assessment of healthcare providers and systems (CAHPS) ® surgical care survey</td></tr>
<tr><td></td><td>
<table>
<tr><td></td><td>during your recovery period?</td><td></td></tr>
<tr><td>Q28</td><td>Did anyone in this surgeon's office give you easy to understand instructions about what to do during your recovery period?</td><td></td></tr>
<tr><td>Q29</td><td>Did this surgeon make sure you were physically comfortable or had enough pain relief after you left the hospital or surgical facility where you had your surgery?</td><td></td></tr>
</table>
5. How Well Surgeon Communicates With Patients After Surgery
<table>
<tr><td>Q31</td><td>After your surgery, did this surgeon listen carefully to you?</td><td rowspan="4">Response Options
Yes, definitely
Yes, somewhat
No</td></tr>
<tr><td>Q32</td><td>After your surgery, did this surgeon spend enough time with you?</td></tr>
<tr><td>Q33</td><td>After your surgery, did this surgeon encourage you to ask questions?</td></tr>
<tr><td>Q34</td><td>After your surgery, did this surgeon show respect for what you had to say?</td></tr>
</table>
6. Helpful, Courteous, and Respectful Staff at Surgeon's Office
<table>
<tr><td>Q36</td><td>During these visits, were clerks and receptionists at this surgeon's office as helpful as you thought they should be?</td><td rowspan="2">Response Options
Yes, definitely
Yes, somewhat
No</td></tr>
<tr><td>Q37</td><td>During these visits, did clerks and receptionists at this surgeon's office treat you with courtesy and respect?</td></tr>
</table>
7. Global Rating: Patients' Rating of the Surgeon
<table>
<tr><td>Q35</td><td>Using any number from 0 to 10, where 0 is the worst surgeon possible and 10 is the best surgeon possible, what number would you use to rate all your care from this surgeon?</td><td>Response Options
0-10</td></tr>
</table>
</td></tr>
<tr><td>Denominator Statement</td><td>The composite does not have a typical denominator statement. This section describes the target population.
The major criteria for selecting patients were having had a major surgery as defined by CPT codes (90 day globals) within 3 to 6 months prior to the start of the survey. . [For the full list of CPT codes, see Attachment J].</td></tr>
<tr><td>Denominator Categories</td><td>Female; Male 18 and older</td></tr>
<tr><td>Denominator Details</td><td>Time Window: The major criteria for selecting patients were having had a major surgery as defined by CPT codes (90 day globals) within 3 to 6 months prior to the start of the survey. Results will typically be compiled over a 12-month period.

The timeframe for the surgery was selected to (1) minimize recall bias and (2) ensure ample time was allowed for follow-up care after surgery.
The CPT codes (90 day globals) for major surgery represent over 10,000 possible codes across multiple surgical specialties. The Surgical Quality Alliance felt that specifying only 90 day global procedure codes would include appropriate procedures while excluding minor procedures that were not intended to be included. [For the CPT codes, see Attachment J].
For each composite, respondents who answer at least one item of the composite are included in the scoring.</td></tr>
<tr><td>Exclusions</td><td>The following patients would be excluded from <u>all</u> composites:
Surgical patients whose procedure was greater than 6 months or less than 3 months prior to the start of the survey.
Surgical patients younger than 18 years old.
Surgical patients who are institutionalized (put in the care of a specialized institution) or deceased.
Surgery performed had to be scheduled and not an emergency procedure since emergency procedures are unlikely to have visits with the surgeon before the surgery.</td></tr>
</table>

<table>
<tr><td></td><td>1741 Patient experience with surgical care based on the consumer assessment of healthcare providers and systems (CAHPS) ® surgical care survey</td></tr>
<tr><td></td><td>• Multiple surgery patients within the same household can be included in the sampling frame. However, once one patient in the household is sampled, any other patients in the same household would be excluded from being sampled in order to minimize survey burden to the household.</td></tr>
<tr><td>Exclusion Details</td><td>See item 2a.9 above.</td></tr>
<tr><td>Risk Adjustment</td><td>Case-mix adjustment is optional.
The set of variables retained for risk adjustment included:
• Self-reported overall health
• Self-reported overall mental and emotional health
• Age
• Education
<table><tr><td colspan="3">Items Used for Case-Mix Adjustment</td></tr><tr><td>Q38</td><td>In general, how would you rate your overall health?</td><td>Excellent
Very good
Good
Fair
Poor</td></tr><tr><td>Q39</td><td>In general, how would you rate your overall mental or emotional health?</td><td>Excellent
Very good
Good
Fair
Poor</td></tr><tr><td>Q40</td><td>What is your age?</td><td>18 to 24 years
25 to 34 years
35 to 44 years
45 to 54 years
55 to 64 years
65 to 74 years
75 years or older</td></tr><tr><td>Q43</td><td>What is the highest grade or level of school that you have completed?</td><td>8th grade or less
Some high school, but did not graduate
High school graduate or GED
Some college or 2-year degree
4-year college graduate
More than 4-year college degree</td></tr></table>See pp. 10-15 of the Surgical Patient Experience of Care Survey: Field Test Operations and Results, Attachment C. See also pp.44-52 of the Instructions for Analyzing Data from CAHPS Surveys, Attachment G.</td></tr>
<tr><td>Stratification</td><td>N/A</td></tr>
<tr><td>Type Score</td><td>Non-Weighted/Composite Better Quality=Higher Score</td></tr>
<tr><td>Algorithm</td><td>N/A</td></tr>
</table>

	0301 Surgery patients with appropriate hair removal
Steward	Centers for Medicare & Medicaid Services | 7500 Security Boulevard, Mail Stop S3-01-02 | Baltimore | Maryland | 21244-1850
Description	Percentage of surgery patients with surgical hair site removal with clippers or depilatory or no surgical site hair removal.
Type	Process

	0301 Surgery patients with appropriate hair removal
Data Source	Electronic administrative data/claims, Electronic Health/Medical Record, Paper medical record/flow-sheet Most facilities use vendors to collect the data electronically. CMS provides a free, downloadable tool called CART. A paper tool modeled after the data collected electronically is provided as an attachment. CART downloads can be found on QualityNet.org at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093 Attachment SCIPCARTpapertool_10.01.10.doc URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228754600169
Level	Can be measured at all levels, Facility/Agency, Population: National, Program: QIO
Setting	Hospital
Numerator Statement	Surgery patients with surgical hair site removal with clippers or depilatory or no surgical site hair removal
Numerator Details	Time Window: Admission to discharge. Data Elements: Preoperative Hair Removal Included Populations: An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.10 for ICD-9-CM codes).
Denominator Statement	All selected surgery patients Include patients with an ICD-9-CM Principal Procedure Codes of selected surgeries.
Denominator Categories	Female; Male 18 years of age and older
Denominator Details	Time Window: Admission to discharge Data Elements: Admission Date Anesthesia Start Date Birthdate Clinical Trial Discharge Date ICD-9-CM Principal Procedure Code Laparoscope Include patients with an ICD-9-CM Principal Procedure code or ICD-9-CM Other Procedure Codes of selected surgeries.
Exclusions	Excluded Populations: Patients less than 18 years of age Patients who have a length of Stay greater than 120 days Patients whose ICD-9-CM principal procedure was performed entirely by laparoscope. Patients enrolled in clinical trials Patients whose ICD-9-CM principal procedure occurred prior to the date of admission Patients who performed their own hair removal
Exclusion Details	The data elements include: Clinical Trial and Laparoscope. Affirmative answers to these data elements excludes the patient from the measure.
Risk Adjustment	no risk adjustment necessary N/A
Stratification	NA
Type Score	Rate/proportion better quality = higher score
Algorithm	SCIP-Infection (Inf)-6: Surgery Patients with Appropriate Hair Removal Variable Key: Patient Age, Surgery Days 1. Start processing. Run cases that are included in the Surgical Care Improvement Project (SCIP) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Calculate Patient Age. The Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month

	0301 Surgery patients with appropriate hair removal
	and day portion of admission date and birthdate to yield the most accurate age. 3. Check Patient Age a. If Patient Age is less than 18 years, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If Patient Age is greater than or equal to 18 years, continue processing and proceed to Laparoscope. 4. Check Laparoscope a. If Laparoscope is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Laparoscope equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Laparoscope equals 2, continue processing and proceed to Clinical Trial. 5. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Anesthesia Start Date. 6. Check Anesthesia Start Date a. If the Anesthesia Start Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Anesthesia Start Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If Anesthesia Start Date equals a Non Unable To Determine Value, continue processing and proceed to the Surgery Days calculation. 7. Calculate Surgery Days. Surgery Days, in days, is equal to the Anesthesia Start Date minus the Admission Date. 8. Check Surgery Days a. If the Surgery Days is less than zero, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the Surgery Days is greater than or equal to zero, continue processing and proceed to Preoperative Hair Removal. 9. Check Preoperative Hair Removal – Note: No allowable value can occur more than once. Allowable values of '1' or '7' cannot be combined with each other or with any of the other allowable values. a. If Preoperative Hair Removal is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Any Preoperative Hair Removal equals 6, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Any Preoperative Hair Removal equals 1, 2, 3, 4, 5, 7, or 8 and None equals 6, continue processing and recheck Preoperative Hair Removal. 10. Recheck Preoperative Hair Removal a. If Any Preoperative Hair Removal equals 2, 5, or 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b. If Any Preoperative Hair Removal equals 1, 3, 4, or 8 and None equals 2, 5, or 7, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population.

	0528 Prophylactic antibiotic selection for surgical patients
Steward	Centers for Medicare & Medicaid Services
Description	Surgical patients who received prophylactic antibiotics consistent with current guidelines (specific to each type of surgical procedure).
Type	Process
Data Source	Electronic administrative data/claims, Electronic Health/Medical Record, Paper medical record/flow-sheet Most facilities use vendors to collect and submit the data electronically. CMS provides a free, downloadable tool called CART. A paper tool modeled after the data collected electronically is provided as an attachment. CART downloads can be found on QualityNet.org at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093

	0528 Prophylactic antibiotic selection for surgical patients
	Attachment SCIPCARTpapertool_10.01.10-634328669255300860.doc URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228754600169
Level	Can be measured at all levels, Facility/Agency, Population: National, Program: QIO
Setting	Hospital
Numerator Statement	Surgical patients who received recommended prophylactic antibiotics for specific surgical procedures
Numerator Details	Time Window: Admission to 24 hours after Anesthesia End Time Data Elements: Antibiotic Administration Route Antibiotic Allergy Antibiotic Name Oral Antibiotics Vancomycin
Denominator Statement	All selected surgical patients with no evidence of prior infection. Included Populations: An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.10 for ICD-9-CM codes). AND An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.01-5.08 for ICD-9-CM codes).
Denominator Categories	Female; Male Patients aged 18 and older
Denominator Details	Time Window: admission to discharge Data Elements: Anesthesia End Date Anesthesia End Time Anesthesia Start Date Admission Date Antibiotic Administration Date Antibiotic Administration Time Antibiotic Received Birthdate Clinical Trial Discharge Date ICD-9-CM Principal Diagnosis Code ICD-9-CM Principal Procedure Code Infection Prior to Anesthesia Laparoscope Perioperative Death Surgical Incision Date Surgical Incision Time
Exclusions	Excluded Populations: Patients less than 18 years of age Patients who have a length of Stay greater than 120 days Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in Appendix A, Table 5.09 for ICD-9-CM codes) Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope Patients enrolled in clinical trials Patients whose ICD-9-CM principal procedure occurred prior to the date of admission Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure of interest Patients who expired perioperatively

	0528 Prophylactic antibiotic selection for surgical patients
	Patients who were receiving antibiotics more than 24 hours prior to surgery (except colon surgery patients taking oral prophylactic antibiotics) Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics) Patients who did not receive any antibiotics before or during surgery, or within 24 hours after Anesthesia End Time (i.e., patient did not receive prophylactic antibiotics) Patients who did not receive any antibiotics during this hospitalization
Exclusion Details	Data Elements: Birthdate Clinical Trial ICD-9-CM Principal Diagnosis Code Infection Prior to Anesthesia Laparoscope Perioperative Death
Risk Adjustment	NA
Stratification	The antibiotic prophylaxis measures are stratified according to surgery type. The tables are subsets of Table 5.10 (see link for Specification Manual and Appendix A, Tables 5.01 to 5.08. The specific procedures must be in the large table (Table 5.10) to be eligible for the SCIP measures. The measure specific tables for SCIP-Inf-2 are 5.01 to 5.08.
Type Score	Rate/proportion Better quality = Higher score
Algorithm	1. Start processing. Run cases that are included in the Surgical Care Improvement Project (SCIP) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Calculate Patient Age. The Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age. 3. Check Patient Age a. If Patient Age is less than 18 years, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for Centers for Medicare and Medicaid Services (CMS). Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Patient Age is greater than or equal to 18 years, continue processing and proceed to ICD-9-CM Principal Procedure Code. 4. Check ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is not on Table 5.01 or 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.01 or 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and proceed to recheck ICD-9-CM Principal Diagnosis Code. 5. Check ICD-9-CM Principal Diagnosis Code a. If the ICD-9-CM Principal Diagnosis Code is on Table 5.09, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the ICD-9-CM Principal Diagnosis Code is not on Table 5.09, continue processing and proceed to Laparoscope. 6. Check Laparoscope a. If Laparoscope is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Laparoscope equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Laparoscope equals 2, continue processing and proceed to Clinical Trial. 7. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the

	0528 Prophylactic antibiotic selection for surgical patients
	Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Clinical Trial equals No, continue processing and proceed to Anesthesia Start Date. 8. Check Anesthesia Start Date a. If the Anesthesia Start Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Anesthesia Start Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Anesthesia Start Date equals a Non Unable To Determine Value, continue processing and proceed to the Surgery Days calculation. 9. Calculate Surgery Days. Surgery Days, in days, is equal to the Anesthesia Start Date minus the Admission Date. 10. Check Surgery Days a. If the Surgery Days is less than zero, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Surgery Days is greater than or equal to zero, continue processing and proceed to Infection Prior to Anesthesia. 11. Check Infection Prior to Anesthesia a. If Infection Prior to Anesthesia is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Infection Prior to Anesthesia equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Infection Prior to Anesthesia equals No, continue processing and proceed to Perioperative Death. 12. Check Perioperative Death a. If Perioperative Death is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Perioperative Death equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Perioperative Death equals No, continue processing and proceed to Surgical Incision Date. 13. Check Surgical Incision Date a. If the Surgical Incision Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP- Inf-2a) for The Joint Commission. b. If the Surgical Incision Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Surgical Incision Date equals a Non Unable To Determine Value, continue processing and proceed to Antibiotic Received. 14. Check Antibiotic Received a. If Antibiotic Received equals 1 or 2, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code b. If Antibiotic Received equals 4, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Antibiotic Received equals 3, continue processing and proceed to step 18 and check Antibiotic Name. Do not check ICD-9-CM Principal Procedure Code, Oral Antibiotics or Antibiotic Received. 15. Recheck ICD-9-CM Principal Procedure Code only if Antibiotic Received equals 1 or 2 a. If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and proceed to check Oral Antibiotics.

	0528 Prophylactic antibiotic selection for surgical patients
	16. Check Oral Antibiotics a. If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Oral Antibiotics equals Yes, continue processing and proceed to recheck Antibiotic Received. 17. Recheck Antibiotic Received a. If Antibiotic Received equals 1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Antibiotic Received equals 2, continue processing and proceed to Antibiotic Name. 18. Check Antibiotic Name a. If the Antibiotic Grid is not populated, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. Note: The front-end edits reject cases containing invalid data and/or an incomplete Antibiotic Grid. A complete Antibiotic Grid requires all data elements in the row to contain either a valid value and/or Unable to Determine. b. If the Antibiotic Name is on Table 2.1, continue processing and proceed to Antibiotic Administration Route. 19. Check Antibiotic Administration Route a. If the Antibiotic Administration Route is equal to 3 or 10 for all antibiotic doses, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Administration Route is equal to 1 or 2 for any antibiotic dose, continue processing and proceed to Antibiotic Administration Date. Proceed only with antibiotic doses on Table 2.1 that are administered via routes 1 or 2. 20. Check Antibiotic Administration Date a. If the Antibiotic Administration Date is equal to Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Administration Date is equal to a Non Unable to Determine date for at least one antibiotic dose, continue processing and proceed to the Antibiotic Days I calculation. Note: Proceed only with antibiotic doses that have an associated Non Unable to Determine date. 21. Calculate Antibiotic Days I. Antibiotic Days I, in days, is equal to the Surgical Incision Date minus the Antibiotic Administration Date. 22. Check Antibiotic Days I a. If the Antibiotic Days I is greater than 1 for at least one antibiotic dose, continue processing and recheck the ICD-9-CM Principal Procedure Code. Do not recheck step 25 Antibiotic Days I, step 26 Surgical Incision Time, step 27 Antibiotic Administration Time, or step 29 Antibiotic Timing I. b. If the Antibiotic Days I is less than or equal to 1 for all antibiotic doses, continue processing. Proceed to step 25 and recheck Antibiotics Days I. Do not recheck ICD-9-CM Principal Procedure Code or Oral Antibiotics. 23. Recheck ICD-9-CM Principal Procedure Code only if the Antibiotics Days was greater than 1 for at least one antibiotic dose a. If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and check Oral Antibiotics. 24. Check Oral Antibiotics a. If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Oral Antibiotics equals Yes, continue processing. Proceed to step 33 and check Anesthesia End Date. Do not

	0528 Prophylactic antibiotic selection for surgical patients
	recheck step 25 Antibiotic Days I, step 26 Surgical Incision Time, step 27 Antibiotic Administration Time, or step 29 Antibiotic Timing I. 25.Recheck Antibiotic Days I only if Antibiotic Days I is less than or equal to 1 for all antibiotic doses a. If the Antibiotic Days I is less than or equal to zero for all antibiotic doses, continue processing. Proceed to step 33 and check Anesthesia End Date. Do not check step 26 Surgical Incision Time, step 27 Antibiotic Administration Time, or step 29 Antibiotic Timing I. b. If the Antibiotic Days I is equal to 1 for ANY antibiotic dose, continue processing and proceed to Surgical Incision Time. 26. Check Surgical Incision Time a. If the Surgical Incision Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Surgical Incision Time is equal to Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If the Surgical Incision Time is equal to a Non Unable to Determine Value, continue processing and check Antibiotic Administration Time. 27. Check Antibiotic Administration Time a. If the Antibiotic Administration Time equals Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Administration Time equals a Non Unable to Determine time for at least one antibiotic dose, continue processing and recheck Antibiotic Administration Time. 28. Recheck Antibiotic Administration Time a. If the Antibiotic Administration Time equals Unable to Determine for ANY antibiotic dose with Antibiotic Days equal to 1, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Administration Time equals a Non Unable to Determine time for All antibiotic doses with Antibiotic Days equal to 1, continue processing and proceed to the Antibiotic Timing I calculation. 29. Calculate Antibiotic Timing I. Antibiotic Timing I, in minutes, is equal to the Surgical Incision Date and Surgical Incision Time minus the Antibiotic Administration Date and Antibiotic Administration Time. Calculate Antibiotic Timing I for all antibiotic doses with Non Unable to Determine date and time. Proceed with antibiotic doses that have Antibiotic Timing I calculated, or Antibiotic Days I less than or equal to zero. 30. Check Antibiotic Timing I a. If the Antibiotic Timing I is greater than 1440 minutes for any antibiotic dose, continue processing and recheck the ICD-9-CM Principal Procedure Code. Proceed with antibiotic doses that have Antibiotic Timing I calculated, or Antibiotic Days I less than or equal to zero. b. If the Antibiotic Timing I is less than or equal to 1440 minutes for all antibiotic doses with non Unable to Determine date and time, continue processing and proceed to step 33 and check Anesthesia End Date. Proceed with antibiotic doses that have Antibiotic Timing I calculated, or Antibiotic Days I less than or equal to zero. Do not recheck ICD-9-CM Principal Procedure Code or Oral Antibiotics. 31. Recheck ICD-9-CM Principal Procedure Code only if Antibiotic Timing I is greater than 1440 for any antibiotic dose a. If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and check Oral Antibiotics. 32. Check Oral Antibiotics a. If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Oral Antibiotics equals Yes, continue processing and proceed to Anesthesia End Date. 33. Check Anesthesia End Date a. If the Anesthesia End Date is missing, the case will proceed to a Measure Category Assignment of X and will be

	0528 Prophylactic antibiotic selection for surgical patients
	rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Anesthesia End Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If the Anesthesia End Date equals a Non Unable to Determine Value, continue processing and proceed to the Antibiotic Days II calculation. 34. Calculate Antibiotic Days II. Antibiotic Days II, in days, is equal to the Antibiotic Administration Date minus the Anesthesia End Date. 35. Check Antibiotic Days II a. If the Antibiotic Days II is less than or equal to zero for all doses of all antibiotics, continue processing. Proceed to step 41 and recheck Antibiotic Administration Route. Do not check step 37 Anesthesia End Time, step 38 Antibiotic Administration Time, or step 39 Antibiotic Timing II. b. If the Antibiotic Days II is greater than zero for at least one dose of any antibiotic, continue processing and proceed to Initialize the Abxday flag. 36. Initialize Abxday flag. Initialize Abxday flag to equal ?No´ for each antibiotic dose. Set Abxday flag to equal ´Yes? for each antibiotic dose where Antibiotic Days II is less than or equal to zero. 37. Check Anesthesia End Time a. If the Anesthesia End Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Anesthesia End Time is equal to Unable to Determine, continue processing and proceed to check the Abxday flag. 1. If the Abxday flag equals No for All doses, the case will proceed to a Measure Category Assignment of D of will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2. f the Abxday flag equals Yes for ANY dose, continue processing and proceed to step 41. Proceed only with doses where the Abxflag is equal to Yes. c. If the Anesthesia End Time is equal to a Non Unable to Determine Value, continue processing and recheck Antibiotic Administration Time. 38. Recheck Antibiotic Administration Time a. If the Antibiotic Administration Time equals Unable to Determine for all antibiotic doses, continue processing and proceed to check the Abxday flag. 1. If the Abxday flag equals No for All doses, the case will proceed to a Measure Category Assignment of D of will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and recheck the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2. If the Abxday flag equals Yes for ANY dose, continue processing and proceed to step 41 and recheck the Antibiotic Administration Route. Proceed only with doses where the Abxflag is equal to Yes. Do not check Antibiotic Timing II. b. If the Antibiotic Administration Time equals a Non Unable to Determine time for at least one antibiotic dose, continue processing and proceed to the Antibiotic Timing II calculation. Proceed with both UTD and Non-UTD time. 39. Calculate Antibiotic Timing II. Antibiotic Timing II, in minutes, is equal to the Antibiotic Administration Date and Antibiotic Administration Time minus Anesthesia End Date and Anesthesia End Time. Calculate Antibiotic Timing II for all antibiotic doses with Non Unable to Determine date and time. Proceed with antibiotic doses that have Antibiotic Timing II calculated, or Abxday flag equal to Yes. 40. Check Antibiotic Timing II a. If the Antibiotic Timing II is greater than 1440 minutes for all doses of all Antibiotics with a Non Unable to Determine date and time, continue processing and proceed to check the Abxday Flag. Proceed with antibiotic doses that have Antibiotic Timing II calculated, or Abxday flag equal to Yes. 1. If the Abxday flag equals No for All doses, the case will proceed to a Measure Category Assignment of B of will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2. If the Abxday flag equals Yes for ANY dose, continue processing and recheck the Antibiotic Administration Route. Proceed only with doses where the Abxflag is equal to Yes. b. If the Antibiotic Timing II is less than or equal to 1440 minutes for at least one dose of ANY antibiotic, continue processing and proceed to Antibiotic Administration Route. Proceed with antibiotic doses that have Antibiotic Timing II

	0528 Prophylactic antibiotic selection for surgical patients
	calculated, or Abxday flag equal to Yes. 41. Recheck Antibiotic Administration Route. For each case, proceed ONLY with those antibiotic doses that satisfy at least one of the following conditions: Antibiotic Timing II is less than or equal to 1440 or Abxday flag is equal to Yes. a. If the Antibiotic Administration Route equals 1 for all doses of all Antibiotics, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Administration Route equals 2 for any dose of any antibiotic, continue processing and proceed to recheck the ICD-9-CM Principal Procedure Code. Note: For each case include only those antibiotics with route IV for further processing. 42. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and proceed to step 46 and recheck Antibiotic Name. Do not recheck to determine if ICD-9-CM Principal Procedure Code is on Tables 5.01, 5.02, 5.04, 5.05, 5.06, 5.07, or 5.08 or if Antibiotic Name is on Table 3.2. b. If the ICD-9-CM Principal Procedure Code is on Tables 5.01, 5.02, 5.04, 5.05, 5.06, 5.07, or 5.08, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code. 43. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07, continue processing and proceed to recheck Antibiotic Name. 1. If the Antibiotic Name is on Table 3.7, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2. If the Antibiotic Name is not on Table 3.7, continue processing and proceed to step 46 and recheck Antibiotic Name. Do not recheck to determine if ICD-9-CM Principal Procedure Code is on Tables 5.01, 5.02, 5.04, 5.05, or 5.08 or if Antibiotic Name is on Table 3.2. b. If the ICD-9-CM Principal Procedure Code is on Tables 5.01, 5.02, 5.04, 5.05, or 5.08, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code. 44.Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.01, 5.02, or 5.08, continue processing and proceed to recheck Antibiotic Name. 1. If the Antibiotic Name is on Table 3.1, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2. If the Antibiotic Name is not on Table 3.1, continue processing and proceed to step 46 and recheck Antibiotic Name. Do not recheck to determine if ICD-9-CM Principal Procedure Code is on Tables 5.04 or 5.05 or if Antibiotic Name is on Table 3.2. b. If the ICD-9-CM Principal Procedure Code is on Tables 5.04 or 5.05, continue processing and proceed to recheck Antibiotic Name. 45. Recheck Antibiotic Name a. If the Antibiotic Name is on Table 3.2, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Name is not on Table 3.2, continue processing and proceed to recheck Antibiotic Name. 46. Recheck Antibiotic Name a. If the Antibiotic Name is on Table 3.6b, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Name is not on Table 3.6b, continue processing and proceed to recheck Antibiotic Name. 47. Recheck Antibiotic Name a. If the Antibiotic Name is on Table 3.5, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Name is not on Table 3.5, continue processing and proceed to recheck Antibiotic Name. 48. Recheck Antibiotic Name a. If the Antibiotic Name is on Table 3.2, continue processing and recheck Antibiotic Name. 1. If the Antibiotic Name is on Table 3.6a, the case will proceed to a Measure Category Assignment of E and will be in the

	0528 Prophylactic antibiotic selection for surgical patients
	Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2. If the Antibiotic name is not on Table 3.6a, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code. b. If the Antibiotic Name is not on Table 3.2, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code. 49. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.01, 5.02, 5.04, 5.05, or 5.08, continue processing and proceed to recheck Antibiotic Name. b. If the ICD-9-CM Principal Procedure Code is on Tables 5.03, 5.06 or 5.07, continue processing and proceed to step 54 and check Antibiotic Allergy, Do not check step 50 and 52 to see if Antibiotic Name is on Tables 3.8 or 3.9, step 51 Antibiotic Allergy or step 53 Vancomycin. 50. Recheck Antibiotic Name only if the ICD-9-CM Principal Procedure Code is on Table 5.01, 5.02, 5.04, 5.05, or 5.08 a. If none of the Antibiotic Names are on Table 3.8 and 3.9, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If at least one of the Antibiotic Names are on Table 3.8 or 3.9, continue processing and proceed to Antibiotic Allergy. 51. Check Antibiotic Allergy only if at least one of the Antibiotic Names are on Table 3.8 or 3.9 a. If Antibiotic Allergy is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Antibiotic Allergy equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Antibiotic Allergy equals No, continue processing and proceed to recheck Antibiotic Name. 52. Recheck Antibiotic Name a. If none of the Antibiotic Names are on Table 3.8, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If at least one of the Antibiotic Names are on Table 3.8, continue processing and proceed to check Vancomycin. 53. Check Vancomycin a. If Vancomycin is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If any Vancomycin value equals 9 and none of the values equal 1, 2, 3, 4, 5, 6, 7, 8, 10, or 11, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If any Vancomycin value equals 1, 2, 3, 4, 5, 6, 7, 8, 10, or 11 and none of the values equals 9, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 54. Check Antibiotic Allergy only if the ICD-9-CM Principal Procedure Code is on Table 5.03, 5.06, or 5.07 a. If Antibiotic Allergy is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Antibiotic Allergy equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Antibiotic Allergy equals Yes, continue processing and proceed to recheck Antibiotic Name. 55. Recheck Antibiotic Name a. If at least one of the Antibiotic Names is on Table 3.9, continue processing and recheck Antibiotic Name. 1. If at least one of the Antibiotic Names is on Tables 2.11 or 3.12 or 2.7, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2. If none of the Antibiotic Names are on Tables 2.11 or 3.12 or 2.7, continue processing and recheck Antibiotic Name. b. If none of the Antibiotic Names are on Table 3.9, continue processing and recheck Antibiotic Name.

	0528 Prophylactic antibiotic selection for surgical patients
	56. Recheck Antibiotic Name a. If at least one of the Antibiotic Names is on Table 3.6a, continue processing and recheck Antibiotic Name. 1. If at least one of the Antibiotic Names is on Tables 2.11 or 3.12, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2. If none of the Antibiotic Names are on Tables 2.11 or 3.12, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If none of the Antibiotic Names are on Table 3.6a, the case will proceed to a Measure Category Assignment of D and will be in the measure population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 57. For The Joint Commission Only, continue processing for the Stratified Measures. Note: Initialize the Measure Category Assignment for each strata measure (b-g) to equal B, not in the Measure Population. Do not change the Measure Category Assignment that was already calculated for the overall rate (SCIP-Inf-2a). The rest of the algorithm will reset the appropriate Measure Category Assignment to be equal to the overall rate´s (SCIP-Inf-2a) Measure Category Assignment. 58. Check Overall Rate Category Assignment a. If the Overall Rate Category Assignment is equal to B or X, set the Measure Category Assignment for the strata measures (SCIP-Inf-2b through SCIP-Inf-2h) to equal B, not in the Measure Population. Stop processing. b. If the Overall Rate Category Assignment is equal to D or E, continue processing and check the ICD-9-CM Principal Procedure Code. Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) SCIP-Inf-2-30 59. Check ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.01, for Stratified Measure SCIP-Inf-2b, set the Measure Category Assignment for measure SCIP-Inf-2b to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the If the ICD-9-CM Principal Procedure Code. 60. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.02, for Stratified Measure SCIP-Inf-2c, set the Measure Category Assignment for measure SCIP-Inf-2c to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the If the ICD-9-CM Principal Procedure Code. 61. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.04, for Stratified Measure SCIP-Inf-2d, set the Measure Category Assignment for measure SCIP-Inf-2d to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the If the ICD-9-CM Principal Procedure Code. 62. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.05, for Stratified Measure SCIP-Inf-2e, set the Measure Category Assignment for measure SCIP-Inf-2e to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.06 or 5.07 or 5.08, continue processing and recheck the If the ICD-9-CM Principal Procedure Code. 63. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.03, for Stratified Measure SCIP-Inf-2f, set the Measure Category Assignment for measure SCIP-Inf-2f to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07 or 5.08, continue processing and recheck the If the ICD-9-CM Principal Procedure Code. 64. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07, for Stratified Measure SCIP-Inf-2g, set the Measure

	0528 Prophylactic antibiotic selection for surgical patients
	Category Assignment for measure SCIP-Inf-2g to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.08, for Stratified Measure SCIP-Inf-2h, set the Measure Category Assignment for measure SCIP-Inf-2h to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing.

	0126 Selection of antibiotic prophylaxis for cardiac surgery patients
Steward	Society of Thoracic Surgeons
Description	Percent of patients aged 18 years and older undergoing cardiac surgery who received preoperative prophylactic antibiotics recommended for the operation.
Type	Process
Data Source	Registry data STS Adult Cardiac Surgery Database – Version 2.73 URL Data Collection Form http://www.sts.org/sites/default/files/documents/STSAdultCVDataCollectionForm2_73_Annotated.pdf URL http://www.sts.org/sites/default/files/documents/STSAdultCVDataSpecificationsV2_73.pdf
Level	Clinicians: Group, Facility/Agency, Population: Counties or cities, Population: National, Population: Regional/network, Population: States
Setting	Hospital
Numerator Statement	Number of patients undergoing cardiac surgery who received a first generation or second generation cephalosporin prophylactic antibiotic (e.g., cefazolin, cefuroxime, cefamandole) preoperatively or in the event of a documented allergy, an alternate antibiotic choice (e.g., vancomycin, clindamycin) was ordered and administered preoperatively.
Numerator Details	Time Window: Number of cardiac surgery procedures in which appropriate antibiotic selection [AbxSelect (STS Adult Cardiac Surgery Database Version 2.73)] is marked “yes”
Denominator Statement	Number of patients undergoing cardiac surgery
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: 12 months Number of cardiac surgery procedures; A cardiac procedure is determined as a procedure for which at least one of the following is not marked “no” or “missing” (note: full terms for STS field names are provided in brackets []): OpCAB[Coronary Artery Bypass], OpValve[Valve Surgery], VADProc [VAD Implanted or Removed], VSAV [Aortic Valve Procedure], VSMV [Mitral Valve Procedure], OpTricus [Tricuspid Valve Procedure Performed], OpPulm[Pulmonic Valve Procedure Performed], OpOCard [Other Cardiac Procedure other than CABG or Valve], 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], OCarACD [Arrhythmia Correction Surgery], OCAoProcType[Aortic Procedure Type], EndoProc [Endovascular Procedure (TEVAR)], OCTumor [resection of an intracardiac tumor], OCPulThromDis [Pulmonary Thromboembolectomy,, OCarOthr [Other Cardiac Procedure other than those listed previously], ECMO [Extracorporeal Membrane Oxygenation], OCarLasr [-Transmyocardial Laser Revascularization], OCarASD [Atrial Septal Defect Repair], OCarAFibSur [Atrial Fibrillation Surgical Procedure]
Exclusions	Exclusions include: - Patients who had a principal diagnosis suggestive of preoperative infectious diseases - Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope - Patients enrolled in clinical trials - Patients with documented infection prior to surgical procedure of interest - Patients who expired perioperatively - Patients who were receiving antibiotics more than 24 hours prior to surgery - Patients who were receiving antibiotics within 24 hours prior to arrival

	0126 Selection of antibiotic prophylaxis for cardiac surgery patients
	- Patients who did not receive any antibiotics before or during surgery, or within 24 hours after anesthesia end time (i.e., patient did not receive prophylactic antibiotics) - Patients who did not receive any antibiotics during this hospitalization This list will be provided in the STS Adult Cardiac Surgery Database Data Manager's Training Manual as acceptable exclusions. AbxSelect is marked "Exclusion"
Exclusion Details	See above
Risk Adjustment	no risk adjustment necessary N/A
Stratification	N/A
Type Score	Rate/proportion better quality = higher score
Algorithm	N/A

	0264 Prophylactic intravenous (IV) antibiotic timing
Steward	ASC Quality Collaboration | 5686 Escondida Blvd S | St. Petersburg | Florida | 33715
Description	Rate of ASC patients who received IV antibiotics ordered for surgical site infection prophylaxis on time
Type	Process
Data Source	Paper Records ASC medical records, as well as medication administration records, and variance reports may serve as data sources. No specific collection instrument is required although the ASC Quality Collaboration has developed a sample data collection instrument that may be used as desired. Facilities may use any collection instrument that allows tracking of the timing of prophylactic IV antibiotic administration for all admissions with a preoperative order for prophylaxis. URL Not required http://ascquality.org/documents/ASCQualityCollaborationImplementationGuide.pdf Not required URL http://ascquality.org/documents/ASCQualityCollaborationImplementationGuide.pdf Not required
Level	Facility
Setting	Ambulatory Care: Ambulatory Surgery Center (ASC)
Numerator Statement	Number of ambulatory surgical center (ASC) admissions with a preoperative order for a prophylactic IV antibiotic for prevention of surgical site infection who received the prophylactic antibiotic on time
Numerator Details	Time Window: In-facility, prior to discharge DEFINITIONS: Admission: completion of registration upon entry into the facility Prophylactic IV antibiotic for prevention of surgical site infection: an antibiotic prescribed with the intent of reducing the probability of an infection related to an invasive procedure; for purposes of this measures, the following are considered prophylactic for surgical site infection: ampicillin/sulbactam, aztreonam, cefazolin, cefmetazole, cefotetan, cefoxitin, cefuroxime, ciprofloxacin, clindamycin, ertapenem, erythromycin, gatifloxacin, gentamicin, levofloxacin, metronidazole, moxifloxacin, neomycin and vancomycin On time: antibiotic infusion is initiated within one hour prior to the time of the initial surgical incision or the beginning of the procedure (e.g., introduction of endoscope, insertion of needle, inflation of tourniquet) or two hours prior if vancomycin or a fluoroquinolone is administered
Denominator Statement	All ASC admissions with a preoperative order for a prophylactic IV antibiotic for prevention of surgical site infection
Denominator Categories	Female; Male All ages
Denominator Details	Time Window: In-facility, prior to discharge DEFINITIONS: Admission: completion of registration upon entry into the facility Prophylactic IV antibiotic for prevention of surgical site infection: an antibiotic prescribed with the intent of reducing the probability of an infection related to an invasive procedure; for purposes of this measures, the following are considered

	0264 Prophylactic intravenous (IV) antibiotic timing
	prophylactic for surgical site infection: ampicillin/sulbactam, aztreonam, cefazolin, cefmetazole, cefotetan, cefoxitin, cefuroxime, ciprofloxacin, clindamycin, ertapenem, erythromycin, gatifloxacin, gentamicin, levofloxacin, metronidazole, moxifloxacin, neomycin and vancomycin
Exclusions	ASC admissions with a preoperative order for a prophylactic IV antibiotic for prevention of infections other than surgical site infections (e.g., bacterial endocarditis). ASC admissions with a preoperative order for a prophylactic antibiotic not administered by the intravenous route.
Exclusion Details	The denominator exclusions do not require additional data collection. They are included to offer additional clarification to the measure user to help ensure only the specified admissions are included for measurement.
Risk Adjustment	no risk adjustment necessary Not applicable
Stratification	The measure is not stratified
Type Score	Rate/proportion better quality = higher score
Algorithm	The number of admissions with a preoperative order for a prophylactic IV antibiotic for prevention of surgical site infection who received the prophylactic antibiotic on time is divided by the number of ASC admissions with a preoperative order for a prophylactic IV antibiotic during the reporting period, yielding the rate of on time prophylactic IV antibiotic administration for the reporting period.

	0527 Prophylactic antibiotic received within 1 hour prior to surgical incision
Steward	Centers for Medicare & Medicaid Services
Description	Surgical patients with prophylactic antibiotics initiated within one hour prior to surgical incision. Patients who received vancomycin or a fluoroquinolone for prophylactic antibiotics should have the antibiotics initiated within two hours prior to surgical incision. Due to the longer infusion time required for vancomycin or a fluoroquinolone, it is acceptable to start these antibiotics within two hours prior to incision time.
Type	Process
Data Source	Electronic administrative data/claims, Electronic Health/Medical Record, Paper medical record/flow-sheet Most facilities use vendors to collect and submit the data electronically. CMS provides a free, downloadable tool called CART. A paper tool modeled after the data collected electronically is provided as an attachment. CART downloads can be found on QualityNet.org at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093 Attachment SCIPCARTpapertool_10.01.10-634328669255300860.doc URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228754600169
Level	Can be measured at all levels, Facility/Agency, Population: National, Program: QIO
Setting	Hospital
Numerator Statement	Number of surgical patients with prophylactic antibiotics initiated within one hour prior to surgical incision (two hours if receiving vancomycin, in Appendix C, Table 3.8, or a fluoroquinolone, in Appendix C, Table 3.10).
Numerator Details	Time Window: Admission to Surgical Incision Time Data Elements: Anesthesia Start Date Antibiotic Administration Date Antibiotic Administration Time Surgical Incision Date Surgical Incision Time
Denominator Statement	All selected surgical patients with no evidence of prior infection. Table 5.10 is the complete table of selected major surgeries
Denominator Categories	Female; Male Patients aged 18 and older
Denominator Details	Time Window: admission to discharge

	0527 Prophylactic antibiotic received within 1 hour prior to surgical incision
	Included Populations: An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.10 for ICD-9-CM codes). AND An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.01-5.08 for ICD-9-CM codes).
Exclusions	Patients less than 18 years of age Patients who have a Length of Stay greater than 120 days Patients who had a hysterectomy and a caesarean section performed during this hospitalization Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in Appendix A, Table 5.09 for ICD-9-CM codes) Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope Patients enrolled in clinical trials Patients whose ICD-9-CM principal procedure occurred prior to the date of admission Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure of interest Patients who had other procedures requiring general or spinal anesthesia that occurred within 3 days (4 days for CABG or Other Cardiac Surgery) prior to or after the procedure of interest (during separate surgical episodes) during this hospital stay Patients who were receiving antibiotics more than 24 hours prior to surgery Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics)
Exclusion Details	Data Elements: Admission Date Antibiotic Received Birthdate Clinical Trial Discharge Date Infection Prior to Anesthesia Laparoscope Oral Antibiotics Other Surgeries
Risk Adjustment	no risk adjustment necessary
Stratification	The antibiotic prophylaxis measures are stratified according to surgery type. The tables are subsets of Table 5.10 (see link for Specification Manual and Appendix A, Tables 5.01 to 5.08. The specific procedures must be in the large table (Table 5.10) to be eligible for the SCIP measures. The measure specific tables for SCIP-Inf-1 are 5.01 to 5.08.
Type Score	Rate/proportion better quality = higher score
Algorithm	1.Start processing. Run cases that are included in the Surgical Care Improvement Project (SCIP) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2.Calculate Patient Age. The Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age. 3.Check Patient Age a.If the Patient Age is less than 18 years, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for Centers for Medicare and Medicaid Services (CMS). Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the Patient Age is greater than or equal to 18 years, continue processing and proceed to ICD-9-CM Principal Procedure Code. 4.Check ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is not on Table 5.01 or 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the ICD-9-CM Principal Procedure Code is on Table 5.01 or 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code.

	0527 Prophylactic antibiotic received within 1 hour prior to surgical incision
	5.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07, continue processing and check ICD-9-CM Other Procedure Code. 1.If any of the ICD-9-CM Other Procedure Codes are on Table 4.07, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. 2.If all of the ICD-9-CM Other Procedure Codes are missing or none are on Table 4.07, continue processing and proceed to ICD-9-CM Principal Diagnosis Code. b.If the ICD-9-CM Principal Procedure Code is not on Table 5.06 or 5.07, continue processing and proceed to ICD-9-CM Principal Diagnosis Code. 6.Check ICD-9-CM Principal Diagnosis Code a.If the ICD-9-CM Principal Diagnosis Code is on Table 5.09, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the ICD-9-CM Principal Diagnosis Code is not on Table 5.09, continue processing and proceed to Laparoscope. 7.Check Laparoscope a.If Laparoscope is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If Laparoscope equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c.If Laparoscope equals 2, continue processing and proceed to Clinical Trial. 8.Check Clinical Trial a.If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c.If Clinical Trial equals No, continue processing and proceed to Anesthesia Start Date. 9.Check Anesthesia Start Date a.If the Anesthesia Start Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the Anesthesia Start Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission c.If Anesthesia Start Date equals a Non Unable To Determine Value, continue processing and proceed to the Surgery Days calculation. 10.Calculate Surgery Days. Surgery Days, in days, is equal to the Anesthesia Start Date minus the Admission Date. 11.Check Surgery Days a.If the Surgery Days is less than zero, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the Surgery Days is greater than or equal to zero, continue processing and proceed to Infection Prior to Anesthesia. 12.Check Infection Prior to Anesthesia a.If Infection Prior to Anesthesia is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If Infection Prior to Anesthesia equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c.If Infection Prior to Anesthesia equals No, continue processing and proceed to Other Surgeries. 13.Check Other Surgeries

	0527 Prophylactic antibiotic received within 1 hour prior to surgical incision
	a.If Other Surgeries is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If Other Surgeries equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c.If Other Surgeries equals No, continue processing and proceed to Surgical Incision Date. 14.Check Surgical Incision Date a.If the Surgical Incision Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP- Inf-1a) for The Joint Commission. b.If the Surgical Incision Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c.If Surgical Incision Date equals a Non Unable To Determine Value, continue processing and proceed to Antibiotic Received. 15.Check Antibiotic Received a.If Antibiotic Received equals 1 or 2, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code b.If Antibiotic Received equals 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c.If Antibiotic Received equals 3, continue processing and proceed to step 19 and check Antibiotic Name. Do not check ICD-9-CM Principal Procedure Code, Oral Antibiotics or Antibiotic Received. 16.Recheck ICD-9-CM Principal Procedure Code only if Antibiotic Received equals 1 or 2 a.If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and proceed to check Oral Antibiotics. 17.Check Oral Antibiotics a.If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c.If Oral Antibiotics equals Yes, continue processing and proceed to recheck Antibiotic Received. 18.Recheck Antibiotic Received a.If Antibiotic Received equals 1, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If Antibiotic Received equals 2, continue processing and proceed to Antibiotic Name. 19.Check Antibiotic Name a.If the Antibiotic Grid is not populated, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. Note: The front-end edits reject cases containing invalid data and/or an incomplete Antibiotic Grid. A complete Antibiotic Grid requires all data elements in the row to contain either a valid value and/or Unable to Determine. b.If the Antibiotic Name is on Table 2.1, continue processing and proceed to Antibiotic Administration Route. 20.Check Antibiotic Administration Route a.If the Antibiotic Administration Route is equal to 3 or 10 for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the Antibiotic Administration Route is equal to 1 or 2 for any antibiotic dose, continue processing and proceed to Antibiotic Administration Date. Proceed only with antibiotic doses on Table 2.1 that are administered via routes 1 or 2. 21.Check Antibiotic Administration Date

	0527 Prophylactic antibiotic received within 1 hour prior to surgical incision
	a.If the Antibiotic Administration Date is equal to Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the Antibiotic Administration Date is equal to a Non Unable to Determine date for at least one antibiotic dose, continue processing and proceed to the Antibiotic Days I calculation. Note: Proceed only with antibiotic doses that have an associated non Unable to Determine date. 22.Calculate Antibiotic Days I. Antibiotic Days I, in days, is equal to the Surgical Incision Date minus the Antibiotic Administration Date. 23.Check Antibiotic Days I a.If the Antibiotic Days I is greater than 1 for at least one antibiotic dose, continue processing and recheck the ICD-9-CM Principal Procedure Code. b.If the Antibiotic Days I is less than or equal to 1 for all antibiotic doses, continue processing. Proceed to step 26 and recheck Antibiotics Days I. Do not recheck ICD-9-CM Principal Procedure Code or Oral Antibiotics. 24.Recheck ICD-9-CM Principal Procedure Code only if the Antibiotic Days I is greater than 1 for at least one antibiotic dose a.If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and check Oral Antibiotics. 25.Check Oral Antibiotics a.If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c.If Oral Antibiotics equals Yes, continue processing and proceed to step 27 and check Surgical Incision Time. Do not recheck Antibiotic Days I. 26.Recheck Antibiotic Days I a.If the Antibiotic Days I is less than zero for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the Antibiotic Days I is greater than or equal to zero for any antibiotic dose, continue processing and proceed to Surgical Incision Time. 27.Check Surgical Incision Time a.If the Surgical Incision Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the Surgical Incision Time is equal to Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c.If the Surgical Incision Time is equal to a Non Unable to Determine Value, continue processing and check Antibiotic Administration Time. 28.Check Antibiotic Administration Time a.If the Antibiotic Administration Time equals Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the Antibiotic Administration Time equals a Non Unable to Determine time for at least one antibiotic dose, continue processing and proceed to the Antibiotic Timing I calculation. Note: Proceed only with antibiotic doses that have an associated non Unable to Determine time. 29.Calculate Antibiotic Timing I. Antibiotic Timing I, in minutes, is equal to the Surgical Incision Date and Surgical Incision Time minus the Antibiotic Administration Date and Antibiotic Administration Time. 30.Check Antibiotic Timing I a.If the Antibiotic Timing I is greater than 1440 minutes for any antibiotic dose, continue processing and recheck the ICD-9-CM Principal Procedure Code.

	0527 Prophylactic antibiotic received within 1 hour prior to surgical incision
	b.If the Antibiotic Timing I is less than or equal to 1440 minutes for all antibiotic doses, continue processing. Proceed to step 33 and recheck Antibiotic Timing I. Do not recheck ICD-9-CM Principal Procedure Code or Oral Antibiotics. 31.Recheck ICD-9-CM Principal Procedure Code only if the Antibiotic Timing I is greater than 1440 minutes for any antibiotic dose a.If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and check Oral Antibiotics. 32.Check Oral Antibiotics a.If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) SCIP-Inf-1-18 processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c.If Oral Antibiotics equals Yes, continue processing and proceed to recheck Antibiotic Timing I. 33.Recheck Antibiotic Timing I a.If the Antibiotic Timing I is greater than or equal to zero minutes and less than or equal to 60 minutes for at least one antibiotic dose, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the Antibiotic Timing I is less than zero minutes or greater than 60 minutes for all antibiotic doses, continue processing and recheck Antibiotic Name. 34.Recheck Antibiotic Name a.If the Antibiotic Name is on Table 3.8 or Table 3.10 for at least one dose, continue processing and recheck Antibiotic Timing I. b.If the Antibiotic Name is not on Table 3.8 or Table 3.10 for any dose, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Do not recheck Antibiotic Timing I. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. 35.Recheck Antibiotic Timing I a.If the Antibiotic Timing I is greater than 60 minutes and less than or equal to 120 minutes for at least one antibiotic dose on Table 3.8 or Table 3.10, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b.If the Antibiotic Timing I is less than zero minutes or greater than 120 minutes for all antibiotic doses on Table 3.8 or Table 3.10, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. 36.For The Joint Commission Only, continue processing for the Stratified Measures. Note: Initialize the Measure Category Assignment for each strata measure (b-g) to equal B, not in the Measure Population. Do not change the Measure Category Assignment that was already calculated for the overall rate (SCIP-Inf-1a). The rest of the algorithm will reset the appropriate Measure Category Assignment to be equal to the overall rate´s (SCIP-Inf-1a) Measure Category Assignment. 37.Check Overall Rate Category Assignment a.If the Overall Rate Category Assignment is equal to B or X, set the Measure Category Assignment for the strata measures (SCIP-Inf-1b through SCIP-Inf-1h) to equal B, not in the Measure Population. Stop processing. b.If the Overall Rate Category Assignment is equal to D or E, continue processing and check the ICD-9-CM Principal Procedure Code. 38.Check ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.01, for Stratified Measure SCIP-Inf-1b, set the Measure Category Assignment for measure SCIP-Inf-1b to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code.

	0527 Prophylactic antibiotic received within 1 hour prior to surgical incision
	39.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.02, for Stratified Measure SCIP-Inf-1c, set the Measure Category Assignment for measure SCIP-Inf-1c to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 40.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.04, for Stratified Measure SCIP-Inf-1d, set the Measure Category Assignment for measure SCIP-Inf-1d to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 41.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.05, for Stratified Measure SCIP-Inf-1e, set the Measure Category Assignment for measure SCIP-Inf-1e to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 42.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.03, for Stratified Measure SCIP-Inf-1f, set the Measure Category Assignment for measure SCIP-Inf-1f to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 43.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07, for Stratified Measure SCIP-Inf-1g, set the Measure Category Assignment for measure SCIP-Inf-1g to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.08, for Stratified Measure SCIP-Inf-1h, set the Measure Category Assignment for measure SCIP-Inf-1h to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing.

	0128 Duration of antibiotic prophylaxis for cardiac surgery patients
Steward	Society of Thoracic Surgeons
Description	Percent of patients aged 18 years and older undergoing cardiac surgery whose prophylactic antibiotics were discontinued within 48 hours after surgery end time
Type	Process
Data Source	Electronic Clinical Data: Registry
Level	Facility; Clinicians: Group/Practice; Population: County or City, Regional, State, National
Setting	Hospital/Acute Care Facility
Numerator Statement	Number of patients undergoing cardiac surgery whose prophylactic antibiotics were discontinued within 48 hours after surgery end time
Numerator Details	Time Window: Within 48 hours after surgery end time Number of cardiac surgery procedures in which appropriate antibiotic discontinuation [AbxDisc (STS Adult Cardiac Surgery Database Version 2.73)] is marked “yes”
Denominator Statement	Number of patients undergoing cardiac surgery
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: 12 months Number of cardiac surgery procedures;

	0128 Duration of antibiotic prophylaxis for cardiac surgery patients
	A cardiac procedure is determined as a procedure for which at least one of the following is not marked "no" or "missing" (note: full terms for STS field names are provided in brackets []): OpCAB[Coronary Artery Bypass], OpValve[Valve Surgery], VADProc [VAD Implanted or Removed], VSAV [Aortic Valve Procedure], VSMV [Mitral Valve Procedure], OpTricus [Tricuspid Valve Procedure Performed], OpPulm[Pulmonic Valve Procedure Performed], OpOCard [Other Cardiac Procedure other than CABG or Valve], 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], OCarACD [Arrhythmia Correction Surgery], OCAoProcType[Aortic Procedure Type], EndoProc [Endovascular Procedure (TEVAR)], OCTumor [resection of an intracardiac tumor], OCPulThromDis [Pulmonary Thromboembolectomy,, OCarOthr [Other Cardiac Procedure other than those listed previously], ECMO [Extracorporeal Membrane Oxygenation], OCarLasr [-Transmyocardial Laser Revascularization], OCarASD [Atrial Septal Defect Repair], OCarAFibSur [Atrial Fibrillation Surgical Procedure]
Exclusions	Exclusions: - Patients who had a principal diagnosis suggestive of preoperative infectious diseases - Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope - Patients enrolled in clinical trials - Patients with documented infection prior to surgical procedure of interest - Patients who expired perioperatively - Patients who were receiving antibiotics more than 24 hours prior to surgery - Patients who were receiving antibiotics within 24 hours prior to arrival - Patients who did not receive any antibiotics during this hospitalization - Patients with reasons to extend antibiotics This list will be provided in the STS Adult Cardiac Surgery Database Data Manager's Training Manual as acceptable exclusions.
Exclusion Details	AbxDisc is marked "Exclusion"
Risk Adjustment	No risk adjustment necessary
Stratification	N/A
Type Score	Rate/proportion Better quality= Higher score
Algorithm	N/A

	0529 Prophylactic antibiotics discontinued within 24 hours after surgery end time
Steward	Centers for Medicare & Medicaid Services
Description	Surgical patients whose prophylactic antibiotics were discontinued within 24 hours after Anesthesia End Time (48 hours for CABG or Other Cardiac Surgery). The Society of Thoracic Surgeons (STS) Practice Guideline for Antibiotic Prophylaxis in Cardiac Surgery (2006) indicates that there is no reason to extend antibiotics beyond 48 hours for cardiac surgery and very explicitly states that antibiotics should not be extended beyond 48 hours even with tubes and drains in place for cardiac surgery.
Type	Process
Data Source	Administrative claims, Electronic clinical data: electronic health record, Paper records
Level	Facility; Population: National, Regional
Setting	Hospital/Acute Care Facility
Numerator Statement	Number of surgical patients whose prophylactic antibiotics were discontinued within 24 hours after Anesthesia End Time (48 hours for CABG or Other Cardiac Surgery).
Numerator Details	Time Window: Admission to 48 hours after Anesthesia End Time Data Elements: Anesthesia End Date Anesthesia End Time Antibiotic Administration Date

	0529 Prophylactic antibiotics discontinued within 24 hours after surgery end time
	Antibiotic Administration Time
Denominator Statement	All selected surgical patients with no evidence of prior infection. Included Populations: An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.10 for ICD-9-CM codes) AND An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.01-5.08 for ICD-9-CM codes)
Denominator Categories	Female; Male 18 and older
Denominator Details	Time Window: Admission to discharge Data Elements: Admission Date Anesthesia Start Date Antibiotic Administration Route Antibiotic Name Antibiotic Received Birthdate Clinical Trial Discharge Date ICD-9-CM Principal Diagnosis Code ICD-9-CM Principal Procedure Code Infection Prior to Anesthesia Laparoscope Oral Antibiotics Other Surgeries Perioperative Death Reasons to Extend Antibiotics Surgical Incision Date Surgical Incision Time
Exclusions	Excluded Populations: Patients less than 18 years of age Patients who have a length of Stay greater than 120 days Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in Appendix A, Table 5.09 for ICD-9-CM codes) Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope Patients enrolled in clinical trials Patients whose ICD-9-CM principal procedure occurred prior to the date of admission Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure of interest Patients who expired perioperatively Patients who had other procedures requiring general or spinal anesthesia that occurred within three days (four days for CABG or Other Cardiac Surgery) prior to or after the procedure of interest (during separate surgical episodes) during this hospital stay Patients who were receiving antibiotics more than 24 hours prior to surgery (except colon surgery patients taking oral prophylactic antibiotics) Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics) Patients who did not receive any antibiotics during this hospitalization. Patients who received urinary antiseptics only (as defined in Appendix C, Table 3.11) Patients with Reasons to Extend Antibiotics.
Exclusion Details	Clinical Trial Infection Prior to Anesthesia Laparoscope

	0529 Prophylactic antibiotics discontinued within 24 hours after surgery end time
	Other Surgeries Perioperative Death Reasons to Extend Antibiotics
Risk Adjustment	No risk adjustment necessary
Stratification	The antibiotic prophylaxis measures are stratified according to surgery type. The tables are subsets of Table 5.10 (see link for Specification Manual and Appendix A, Tables 5.01 to 5.08. The specific procedures must be in the large table (Table 5.10) to be eligible for the SCIP measures. The measure specific tables for SCIP-Inf-3 are 5.01 to 5.08.
Type Score	Rate/proportion better quality = higher score
Algorithm	1.Start processing. Run cases that are included in the Surgical Care Improvement Project (SCIP) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2.Calculate Patient Age. The Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age. 3.Check Patient Age a.If Patient Age is less than 18 years, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for Centers for Medicare and Medicaid Services (CMS). Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If Patient Age is greater than or equal to 18 years, continue processing and proceed to ICD-9-CM Principal Procedure Code. 4.Check ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is not on Table 5.01 or 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the ICD-9-CM Principal Procedure Code is on Table 5.01 or 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and proceed to recheck ICD-9-CM Principal Diagnosis Code. 5.Check ICD-9-CM Principal Diagnosis Code a.If the ICD-9-CM Principal Diagnosis Code is on Table 5.09, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the ICD-9-CM Principal Diagnosis Code is not on Table 5.09, continue processing and proceed to Laparoscope. 6.Check Laparoscope a.If Laparoscope is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If Laparoscope equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If Laparoscope equals 2, continue processing and proceed to Clinical Trial. 7.Check Clinical Trial a.If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If Clinical Trial equals No, continue processing and proceed to Anesthesia Start Date. 8.Check Anesthesia Start Date a.If the Anesthesia Start Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Anesthesia Start Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If Anesthesia Start Date equals a Non Unable To Determine Value, continue processing and proceed to the Surgery

	0529 Prophylactic antibiotics discontinued within 24 hours after surgery end time
	Days calculation. 9.Calculate Surgery Days. Surgery Days, in days, is equal to the Anesthesia Start Date minus the Admission Date. 10.Check Surgery Days a.If the Surgery Days is less than zero, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Surgery Days is greater than or equal to zero, continue processing and proceed to Infection Prior to Anesthesia. 11.Check Infection Prior to Anesthesia a.If Infection Prior to Anesthesia is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If Infection Prior to Anesthesia equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If Infection Prior to Anesthesia equals No, continue processing and proceed to Perioperative Death. 12.Check Perioperative Death a.If Perioperative Death is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If Perioperative Death equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If Perioperative Death equals No, continue processing and proceed to Surgical Incision Date. 13.Check Surgical Incision Date a.If the Surgical Incision Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP- Inf-3a) for The Joint Commission. b.If the Surgical Incision Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If Surgical Incision Date equals a Non Unable To Determine Value, continue processing and proceed to Other Surgeries. 14.Check Other Surgeries a.If Other Surgeries is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If Other Surgeries equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If Other Surgeries equals No, continue processing and proceed to Antibiotic Received. 15.Check Antibiotic Received a.If Antibiotic Received equals 1 or 2, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code b.If Antibiotic Received equals 4, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If Antibiotic Received equals 3, continue processing and proceed to step 19 and check Antibiotic Name. Do not check step 16 ICD-9-CM Principal Procedure Code, step 17 Oral Antibiotics or step 18 Antibiotic Received. 16.Recheck ICD-9-CM Principal Procedure Code only if Antibiotic Received equals 1 or 2 a.If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and proceed to check Oral Antibiotics. 17.Check Oral Antibiotics a.If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint

	0529 Prophylactic antibiotics discontinued within 24 hours after surgery end time
	Commission. b.If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If Oral Antibiotics equals Yes, continue processing and proceed to recheck Antibiotic Received. 18.Recheck Antibiotic Received a.If Antibiotic Received equals 1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If Antibiotic Received equals 2, continue processing and proceed to Antibiotic Name. 19.Check Antibiotic Name a.If the Antibiotic Grid is not populated, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. Note: The front-end edits reject cases containing invalid data and/or an incomplete Antibiotic Grid. A complete Antibiotic Grid requires all data elements in the row to contain either a valid value and/or Unable to Determine. b.If the Antibiotic Name is on Table 2.1, continue processing and recheck Antibiotic Name. 20.Recheck Antibiotic Name a.If all of the Antibiotic Names are on Table 3.11, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If at least one of the Antibiotic Names is NOT on Table 3.11, continue processing and proceed to Antibiotic Administration Route. Exclude antibiotic doses on Table 3.11 from further processing. 21.Check Antibiotic Administration Route a.If the Antibiotic Administration Route is equal to 3 or 10 for all antibiotic doses, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Antibiotic Administration Route is equal to 1 or 2 for any antibiotic dose, continue processing and proceed to Antibiotic Administration Date. Proceed only with antibiotic doses on Table 2.1 that are administered via routes 1 or 2. 22.Check Antibiotic Administration Date a.If the Antibiotic Administration Date is equal to Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Antibiotic Administration Date is equal to a Non Unable to Determine date for at least one antibiotic dose, continue processing and proceed to the Antibiotic Days I calculation. Note: Proceed only with antibiotic doses that have an associated Non Unable to Determine date. 23.Calculate Antibiotic Days I. Antibiotic Days I, in days, is equal to the Surgical Incision Date minus the Antibiotic Administration Date. 24.Check Antibiotic Days I a.If the Antibiotic Days I is greater than 1 for at least one antibiotic dose, continue processing and recheck the ICD-9-CM Principal Procedure Code. Do not recheck step 27 Antibiotic Days I, step 28 Surgical Incision Time, steps 29 and 30 Antibiotic Administration Time, or step 31 Antibiotic Timing I. b.If the Antibiotic Days I is less than or equal to 1 for all antibiotic doses, continue processing. Proceed to step 27 and recheck Antibiotics Days I. Do not recheck ICD-9-CM Principal Procedure Code or Oral Antibiotics. 25.Recheck ICD-9-CM Principal Procedure Code only if Antibiotic Days I is greater than 1 for at least one antibiotic dose a.If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and check Oral Antibiotics. 26.Check Oral Antibiotics a.If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission.

	0529 Prophylactic antibiotics discontinued within 24 hours after surgery end time
	c.If Oral Antibiotics equals Yes, continue processing and proceed to step 35 and check Anesthesia End Date. Do not recheck step 27 Antibiotic Days I, step 28 Surgical Incision Time, steps 29 and 30 Antibiotic Administration Time, or 31 Antibiotic Timing I. 27.Recheck Antibiotic Days I only if Antibiotic Days I was less than or equal to 1 for all antibiotic doses a.If the Antibiotic Days I is less than or equal to zero for ALL antibiotic doses, continue processing. Proceed to step 35 and check Anesthesia End Date. Do not check step 28 Surgical Incision Time, step 29 and 30 Antibiotic Administration Time, or step 31 Antibiotic Timing I. b.If the Antibiotic Days I is equal to 1 for ANY antibiotic dose, continue processing and proceed to Surgical Incision Time. 28.Check Surgical Incision Time a.If the Surgical Incision Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Surgical Incision Time is equal to Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If the Surgical Incision Time is equal to a Non Unable to Determine Value, continue processing and check Antibiotic Administration Time. 29.Check Antibiotic Administration Time a.If the Antibiotic Administration Time equals Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Antibiotic Administration Time equals a Non Unable to Determine time for at least one antibiotic dose, continue processing and recheck Antibiotic Administration Time. 30.Recheck Antibiotic Administration Time a.If the Antibiotic Administration Time equals Unable to Determine for ANY antibiotic dose with Antibiotic Days I equal to 1, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Antibiotic Administration Time equals a Non Unable to Determine time for ALL antibiotic doses with Antibiotic Days I equal to 1, continue processing and proceed to the Antibiotic Timing I calculation. 31.Calculate Antibiotic Timing I. Antibiotic Timing I, in minutes, is equal to the Surgical Incision Date and Surgical Incision Time minus the Antibiotic Administration Date and Antibiotic Administration Time. Calculate Antibiotic Timing I for all antibiotic doses with non Unable to Determine date and time. Proceed with antibiotic doses that have Antibiotic Timing I calculated, or Antibiotic Days I less than or equal to zero. 32.Check Antibiotic Timing I a.If the Antibiotic Timing I is greater than 1440 minutes for any antibiotic dose, continue processing and recheck the ICD-9-CM Principal Procedure Code. Proceed with antibiotic does that have Antibiotic Timing I calculated, or Antibiotic Days I less than or equal to zero. b.If the Antibiotic Timing I is less than or equal to 1440 minutes for all antibiotic doses with non Unable to Determine date and time, continue processing. Proceed to step 35 and check Anesthesia End Date. Do not recheck ICD-9-CM Principal Procedure Code or Oral Antibiotics. 33.Recheck ICD-9-CM Principal Procedure Code only if the Antibiotic Timing I is greater than 1440 minutes for any antibiotic dose a.If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and check Oral Antibiotics. 34.Check Oral Antibiotics a.If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If Oral Antibiotics equals Yes, continue processing and proceed to Anesthesia End Date.

	0529 Prophylactic antibiotics discontinued within 24 hours after surgery end time
	35.Check Anesthesia End Date a.If the Anesthesia End Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Anesthesia End Date is equal to Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If the Anesthesia End Date is equal to a Non Unable to Determine value, continue processing and proceed to the Antibiotic Days II calculation. 36.Calculate Antibiotic Days II. Antibiotic Days II, in days, is equal to the Antibiotic Administration Date minus the Anesthesia End Date. 37.Set Exclusion Flag, for all cases, to equal No. If all of the antibiotic doses of a case satisfy one of the two following conditions, set Exclusion Flag (for this case) to equal ?Yes'. These conditions are: a.Antibiotic Days II is greater than 3 days regardless of table on which procedure code is on; OR b.Antibiotic Days II is greater than 2 days AND ICD-9-CM Principal Procedure Code is on Table 5.03, 5.04, 5.05, 5.06, 5.07, or 5.08. 38.Check Exclusion Flag a.If the Exclusion Flag is equal to Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Exclusion Flag is equal to No, continue processing and proceed to check Antibiotic Days II. Remove any dose that satisfies one of the two following conditions. These conditions are: 1.Antibiotic Days II is greater than 3 days regardless of procedure on which procedure code is on; OR 2.Antibiotic Days II is greater than 2 days AND ICD-9-CM Principal Procedure Code is on Table 5.03, 5.04, 5.05, 5.06, 5.07 or 5.08. 39.Check Antibiotic Days II a.If the Antibiotic Days II is less than or equal to zero for all antibiotic doses, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Antibiotic Days II is greater than zero for at least one antibiotic dose, continue processing and recheck ICD-9-CM Principal Procedure Code. 40.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.01 or 5.02, continue processing and recheck Antibiotic Days II. 1.If the Antibiotic Days II is less than 2 days for antibiotic doses, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. 2.If the Antibiotic Days II is greater than or equal to 2 days for at least one antibiotic dose, continue processing and proceed to Anesthesia End Time. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and proceed to Anesthesia End Time. 41.Check Anesthesia End Time a.If the Anesthesia End Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Anesthesia End Time is equal to Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If the Anesthesia End Time is equal to a Non Unable to Determine Value, continue processing and recheck Antibiotic Administration Time. 42.Recheck Antibiotic Administration Time a.If the Antibiotic Administration Time equals Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Antibiotic Administration Time equals a Non Unable to Determine time for at least one antibiotic dose, continue processing and proceed to the Antibiotic Timing II calculation. Remove from consideration any antibiotic doses for which

	0529 Prophylactic antibiotics discontinued within 24 hours after surgery end time
	Antibiotic Administration Time equals Unable to Determine. 43.Calculate Antibiotic Timing II. Antibiotic Timing II, in minutes, is equal to the Antibiotic Administration Date and Antibiotic Administration Time minus Anesthesia End Date and Anesthesia End Time. 44.Set Exclusion Flag. Set Exclusion Flag, for all cases, to equal ?No'. If all of the antibiotic doses of a case satisfy one of the two following conditions, set Exclusion Flag (for this case) to equal ?Yes'. These conditions are: a.Antibiotic Timing is greater than 4320 minutes; OR b.Antibiotic Timing II is greater than 2880 minutes AND ICD-9-CM Principal Procedure Code is on Table 5.03, 5.04, 5.05, 5.06, 5.07, or 5.08. 45.Check Exclusion Flag a.If the Exclusion Flag equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the Exclusion Flag equals No, continue processing and recheck ICD-9-CM Principal Procedure Code and Antibiotic Timing II. Remove any dose that satisfies one of the two following conditions. These conditions are: 1.Antibiotic Timing II is greater than 4320 minutes; OR Principal Procedure Code is on Table 5.03, 5.04, 5.05, 5.06, 5.07, or 5.08. 46.Recheck ICD-9-CM Principal Procedure Code and Antibiotic Timing II a.If the ICD-9-CM Principal Procedure Code is on Table 5.01 or 5.02 and Antibiotic Timing II is less than or equal to 2880 minutes for all antibiotic doses, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b.If the ICD-9-CM Principal Procedure Code is on Table 5.01 or 5.02 and Antibiotic Timing II is greater than 2880 minutes for at least one antibiotic dose, continue processing and proceed to check Reasons To Extend Antibiotics. 1.If Reasons To Extend Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. 2.If Reasons To Extend Antibiotics equals 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. 3.If Any Reasons To Extend Antibiotics equals 1, 2, 3, 4, 5, 6 and None equals 7, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c.If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08 and Antibiotic Timing II is less than or equal to 1440 minutes for all antibiotic doses, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. d.If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08 and Antibiotic Timing II is greater than 1440 minutes for at least one antibiotic dose, continue processing and proceed to check Reasons To Extend Antibiotics. 1.If Reasons To Extend Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. 2.If Reasons To Extend Antibiotics equals 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. 3.If Any Reasons To Extend Antibiotics equals 1, 2, 3, 4, 5, 6 and None equals 7, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. 47.For The Joint Commission Only, continue processing for the Stratified Measures. Note: Initialize the Measure Category Assignment for each strata measure (b-g) to equal B, not in the Measure Population. Do not change the Measure Category Assignment that was already calculated for the overall rate (SCIP-Inf-3a). The rest of the algorithm will reset the appropriate Measure Category Assignment to be equal to the overall rate´s (SCIP-Inf-3a) Measure Category Assignment. 48.Check Overall Rate Category Assignment a.If the Overall Rate Category Assignment is equal to B or X, set the Measure Category Assignment for the strata measures (SCIP-Inf-3b through SCIP-Inf-3h) to equal B, not in the Measure Population. Stop processing.

	0529 Prophylactic antibiotics discontinued within 24 hours after surgery end time
	b.If the Overall Rate Category Assignment is equal to D or E, continue processing and check the ICD-9-CM Principal Procedure Code. 49.Check ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.01, for Stratified Measure SCIP-Inf-3b, set the Measure Category Assignment for measure SCIP-Inf-3b to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 50.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.02, for Stratified Measure SCIP-Inf-3c, set the Measure Category Assignment for measure SCIP-Inf-3c to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 51.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.04, for Stratified Measure SCIP-Inf-3d, set the Measure Category Assignment for measure SCIP-Inf-3d to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 52.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.05, for Stratified Measure SCIP-Inf-3e, set the Measure Category Assignment for measure SCIP-Inf-3e to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 53.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.03, for Stratified Measure SCIP-Inf-3f, set the Measure Category Assignment for measure SCIP-Inf-3f to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 54.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07, for Stratified Measure SCIP-Inf-3g, set the Measure Category Assignment for measure SCIP-Inf-3g to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.08, for Stratified Measure SCIP-Inf-3h, set the Measure Category Assignment for measure SCIP-Inf-3h to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing.

	0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time
Steward	Centers for Medicare & Medicaid Services | 7500 Security Boulevard , Mail Stop S3-01-02 | Baltimore | Maryland | 21244-1850
Description	Percentage of surgery patients who received appropriate Venous Thromboembolism (VTE) Prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time
Type	Process
Data Source	Electronic Clinical Data, Electronic Health/Medical Record, Paper medical record/flow-sheet URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138900279093 URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228754600169
Level	Can be measured at all levels, Facility/Agency, Program : QIO

	0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time
Setting	Hospital
Numerator Statement	Surgery patients who received appropriate VTE prophylaxis within 24 hours prior to Surgical Incision Time to 24 hours after Surgery End Time Appropriate prophylaxis according to Surgery Type: Intracranial Neurosurgery Any of the following: •Intermittent pneumatic compression devices (IPC) with or without graduated compression stockings (GCS) •Low-dose unfractionated heparin (LDUH) Low molecular weight heparin (LMWH)2 •LDUH or LMWH2 combined with IPC or GCS General Surgery Any of the following: •Low-dose unfractionated heparin (LDUH) •Low molecular weight heparin (LMWH) •Factor Xa Inhibitor (Fondaparinux) •LDUH or LMWH or Factor Xa Inhibitor (fondaparinux) combined with IPC or GCS General Surgery with a reason for not administering pharmacological prophylaxisAny of the following: •Graduated Compression stockings (GCS) •Intermittent pneumatic compression devices (IPC) Gynecologic Surgery Any of the following: •Low-dose unfractionated heparin (LDUH) •Low molecular weight heparin (LMWH) •Factor Xa Inhibitor (fondaparinux) •Intermittent pneumatic compression devices (IPC) •LDUH or LMWH or Factor Xa Inhibitor (fondaparinux) combined with IPC or GCS Urologic Surgery Any of the following: •Low-dose unfractionated heparin (LDUH) •Low molecular weight heparin (LMWH) •Factor Xa Inhibitor (fondaparinux) •Intermittent pneumatic compression devices (IPC) •Graduated compression stockings (GCS) •LDUH or LMWH or Factor Xa Inhibitor (fondaparinux) combined with IPC or GCS Elective Total Hip Replacement Any of the following started within 24 hours of surgery: •Low molecular weight heparin (LMWH) •Factor Xa Inhibitor (Fondaparinux) •Warfarin Elective Total Knee Replacement Any of the following: •Low molecular weight heparin (LMWH) •Factor Xa Inhibitor (Fondaparinux) •Warfarin •Intermittent pneumatic compression devices (IPC) •Venous foot pump (VFP) Hip Fracture Surgery Any of the following: •Low-dose unfractionated heparin (LDUH) •Low molecular weight heparin (LMWH) •Factor Xa Inhibitor (Fondaparinux) •Warfarin Elective Total Hip Replacement with a reason for not administering pharmacological prophylaxis Any of the following:

	0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time
	•Intermittent pneumatic compression devices (IPC) •Venous foot pump (VFP) Hip Fracture Surgery with a reason for not administering pharmacological prophylaxis Any of the following: •Graduated Compression Stockings (GCS) •Intermittent pneumatic compression devices (IPC) •Venous foot pump (VFP)
Numerator Details	Time Window: 24 hours prior to incision to 24 hours after surgery end time Data Elements: Anesthesia Type VTE Prophylaxis VTE Timely
Denominator Statement	All selected surgery patients
Denominator Categories	Female; Male Patients 18 years of age and older
Denominator Details	Time Window: Entire inpatient admission Data Elements: Admission Date Anesthesia End Date Anesthesia End Time Anesthesia Start Date Anesthesia Start Time Birthdate Clinical Trial Discharge Date ICD-9-CM Principal Diagnosis Code ICD-9-CM Principal Procedure Code Laparoscope Perioperative Death Preadmission Warfarin Reason for Not Administering VTE Prophylaxis
Exclusions	Data Elements Clinical Trial Laparoscope Perioperative Death Preadmission Warfarin Reason for Not Administering VTE Prophylaxis
Exclusion Details	Excluded Populations: Patients less than 18 years of age Patients who have a Length of Stay greater than 120 days Burn patients (as defined in Appendix A, Table 5.14 for ICD-9-CM codes) Patients with procedures performed entirely by Laparoscope Patients enrolled in clinical trials Patients who are on warfarin prior to admission Patients whose ICD-9-CM principal procedure occurred prior to the date of admission Patients whose total surgery time is less than or equal to 60 minutes Patients with hospital length of stay less than or equal to 3 calendar days Patients who expire perioperatively Patients with reasons for not administering both mechanical and pharmacological prophylaxis Patients who did not receive VTE Prophylaxis (as defined in the Data Dictionary)
Risk Adjustment	no risk adjustment necessary N/A

	0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time
Stratification	No stratification except by surgery type and those are Intracranial Neurosurgery Appendix A,Table 5.17 General Surgery Appendix A, Table 5.19 Gynecologic Surgery Appendix A, Table 5.20 Urologic Surgery Appendix A,Table 5.21 Elective Total Hip Replacement Appendix A,Table 5.22 Elective Total Knee Replacement Appendix A,Table 5.23 Hip Fracture Surgery Appendix A,Table 5.24
Type Score	Rate/proportion better quality = higher score
Algorithm	SCIP- Venous Thromboembolism (VTE)-2: Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis Within 24 Hours Prior to Surgery to 24 Hours After Surgery Numerator: Surgery patients who received Venous Thromboembolism (VTE) prophylaxis 24 hours prior to Anesthesia Start Time to 24 hours after Anesthesia End Time. Denominator: All selected surgery patients. Variable Key: Patient Age, Length of Stay (LOS), Surgery Length, Surgery Days 1.Start processing. Run cases that are included in the Surgical Care Improvement Project (SCIP) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2.Calculate Patient Age. The Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age. 3.Check Patient Age a.If Patient Age is less than 18 years, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b.If Patient Age is greater than or equal to 18 years, continue processing and proceed to ICD-9-CM Principal Procedure Code. 4.Check ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is not on Table 5.17, 5.19, 5.20, 5.21, 5.22, 5.23, or 5.24, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.17, 5.19, 5.20, 5.21, 5.22, 5.23, or 5.24, continue processing and proceed to ICD-9-CM Principal Diagnosis Code. 5.Check ICD-9-CM Principal Diagnosis Code a.If the ICD-9-CM Principal Diagnosis Code is on Table 5.14, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b.If the ICD-9-CM Principal Diagnosis Code is not on Table 5.14, continue processing and proceed to the LOS calculation. 6.Calculate LOS. LOS, in days, is equal to the Discharge Date minus the Admission Date. 7.Check LOS a.If the LOS is less than or equal to 3 days, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Calculation. Stop processing. b.If the LOS is greater than 3 days, continue processing and proceed to Laparoscope. 8.Check Laparoscope a.If Laparoscope is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If Laparoscope equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c.If Laparoscope equals 2, continue processing and proceed to Clinical Trial. 9.Check Clinical Trial a.If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c.If Clinical Trial equals No, continue processing and proceed to Preadmission Warfarin. 10.Check Preadmission Warfarin a.If Preadmission Warfarin is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If Preadmission Warfarin equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in

	0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time
	the Measure Population. Stop processing. c.If Preadmission Warfarin equals No, continue processing and proceed to Anesthesia Start Date. 11.Check Anesthesia Start Date a.If the Anesthesia Start Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) SCIP-VTE-2-13 b.If the Anesthesia Start Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c.If Anesthesia Start Date equals a Non Unable To Determine Value, continue processing and proceed to the Surgery Days calculation. 12.Calculate Surgery Days. Surgery Days, in days, is equal to the Anesthesia Start Date minus the Admission Date. 13.Check Surgery Days a.If the Surgery Days is less than zero, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b.If the Surgery Days is greater than or equal to zero, continue processing and proceed to Perioperative Death. 14.Check Perioperative Death a.If Perioperative Death is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If Perioperative Death equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c.If Perioperative Death equals No, continue processing and proceed to Anesthesia Start Time. 15.Check Anesthesia Start Time a.If the Anesthesia Start Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If the Anesthesia Start Time equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c.If the Anesthesia Start Time equals a Non Unable to Determine Value, continue processing and proceed to Anesthesia End Date. 16.Check Anesthesia End Date a.If the Anesthesia End Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If the Anesthesia End Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c.If the Anesthesia End Date equals a Non Unable to Determine Value, continue processing and proceed to Anesthesia End Time. Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) SCIP-VTE-2-14 17.Check Anesthesia End Time a.If the Anesthesia End Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If the Anesthesia End Time equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c.If the Anesthesia End Time equals a Non Unable to Determine Value, continue processing and proceed to the Surgery Length calculation. 18.Calculate Surgery Length. Surgery Length, in minutes, is equal to the Anesthesia End Date and Anesthesia End Time minus the Anesthesia Start Date and Anesthesia Start Time. 19.Check Surgery Length a.If the Surgery Length is less than or equal to 60 minutes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b.If the Surgery Length is greater than 60 minutes, continue processing proceed to Reason for Not Administering VTE Prophylaxis. 20.Check Reason for Not Administering VTE Prophylaxis a.If Reason for Not Administering VTE Prophylaxis is missing, the case will proceed to a Measure Category Assignment

	0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time
	of X and will be rejected. Stop processing. b.If Reason for Not Administering VTE Prophylaxis equals 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c.If Reason for Not Administering VTE Prophylaxis equals 1, 2, or 4, continue processing and proceed to VTE Prophylaxis. 21.Check VTE Prophylaxis a.If no values are populated in the VTE grid, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If VTE Prophylaxis equals A, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c.If the VTE grid is populated with any of values 1, 2, 3, 4, 5, 6, 7, or 8, continue processing and proceed to recheck the ICD-9-CM Principal Procedure Code. Note: If VTE Prophylaxis field is populated with an allowable value of 1, 2, 3, 4, 5, 6, 7, or 8 and the corresponding VTE Timely field is Missing, the entire case will be rejected by The Joint Commission and Centers for Medicare and Medicaid Services (CMS) warehouses. 22.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Tables 5.17, 5.20, 5.21, 5.22, 5.23, or 5.24, continue processing. Proceed to step 26 and recheck ICD-9-CM Principal Procedure Code for Tables 5.17, 5.20, 5.21, 5.22, 5.23, and 5.24. Do not recheck step 23 and step 25 VTE Prophylaxis or step 24 Reason for Not Administering VTE Prophylaxis for Tables 5.17, 5.20, 5.21, 5.22, 5.23, and 5.24 as steps 23 through 26 check for codes on Table 5.19 only. b.If the ICD-9-CM Principal Procedure Code is on Table 5.19, continue processing and recheck VTE Prophylaxis. 23.Recheck VTE Prophylaxis only if the ICD-9-CM Principal Procedure Code is on Table 5.19 a.If any VTE Prophylaxis equals 1, 2, or 5, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 1 or 2 or 5, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. 2.If VTE Timely equals No for VTE Prophylaxis of 1 and 2 and 5, continue processing and recheck Reason for Not Administering VTE Prophylaxis. b.If none of the VTE Prophylaxis equals 1, 2, or 5, continue processing and proceed to recheck Reason for Not Administering VTE Prophylaxis. 24.Recheck Reason for Not Administering VTE Prophylaxis a.If Reason for Not Administering VTE Prophylaxis equals 1 or 4, continue processing and proceed to Anesthesia Type. 1.If Anesthesia Type is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. 2.If Anesthesia Type equals 1 or 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 3.If Anesthesia Type equals 2 or 3, continue processing and recheck VTE Prophylaxis. b.If Reason for Not Administering VTE Prophylaxis equals 2, continue processing and recheck VTE Prophylaxis. 25.Recheck VTE Prophylaxis a.If any VTE Prophylaxis equals 3 or 4, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 3 or 4, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. 2.If VTE Timely equals No for VTE Prophylaxis of 3 and 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If none of the VTE Prophylaxis equals 3 or 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 26.Recheck ICD-9-CM Principal Procedure Code for Tables 5.17, 5.20, 5.21, 5.22, 5.23, and 5.24 only if the ICD-9-CM Principal Procedure Code was not on Table 5.19 a.If the ICD-9-CM Principal Procedure Code is on Table 5.17, continue processing and recheck VTE Prophylaxis. 1.If any VTE Prophylaxis equals 1, 2, or 3, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. i.If VTE Timely equals Yes for VTE Prophylaxis of 1 or 2 or 3, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. ii.If VTE Timely equals No for VTE Prophylaxis of 1 and 2 and 3, the case will proceed to a Measure Category Assignment

	0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time
	of D and will be in the Measure Population. Stop processing. 2.If none of the VTE Prophylaxis equals 1, 2, or 3, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Tables 5.20, 5.21, 5.22, 5.23, or 5.24, continue processing and recheck ICD-9-CM Principal Procedure Code. 27.Recheck ICD-9-CM Principal Procedure Code for Tables 5.20, 5.21, 5.22, 5.23, and 5.24 only if the ICD-9-CM Principal Procedure Code is not on Tables 5.17 or 5.19 a.If the ICD-9-CM Principal Procedure Code is on Table 5.20, continue processing and recheck VTE Prophylaxis. 1.If any VTE Prophylaxis equals 1, 2, 3 or 5, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. i.If VTE Timely equals Yes for VTE Prophylaxis of 1 or 2 or 3 or 5, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. ii.If VTE Timely equals No for VTE Prophylaxis of 1 and 2 and 3 and 5, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 2.If none of the VTE Prophylaxis equals 1, 2, 3, or 5, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Tables 5.21, 5.22, 5.23, or 5.24, continue processing and recheck ICD-9-CM Principal Procedure Code. 28.Recheck ICD-9-CM Principal Procedure Code for Tables 5.21, 5.22, 5.23, and 5.24 only if the ICD-9-CM Principal Procedure Code is not on Tables 5.17, 5.19, or 5.20 a.If the ICD-9-CM Principal Procedure Code is on Table 5.21, continue processing and recheck VTE Prophylaxis. 1.If any VTE Prophylaxis equals 1, 2, 3, 4, or 5, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. i.If VTE Timely equals Yes for VTE Prophylaxis of 1 or 2 or 3 or 4 or 5, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. ii.If VTE Timely equals No for VTE Prophylaxis of 1 and 2 and 3 and 4 and 5, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 2.If none of the VTE Prophylaxis equals 1, 2, 3, 4, or 5, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Tables 5.22, 5.23, or 5.24, continue processing and recheck ICD-9-CM Principal Procedure Code. Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) SCIP-VTE-2-18 29.Recheck ICD-9-CM Principal Procedure Code for Tables 5.22, 5.23, and 5.24 only if the ICD-9-CM Principal Procedure Code is not on Tables 5.17, 5.19, 5.20, or 5.21 a.If the ICD-9-CM Principal Procedure Code is on Table 5.22, continue processing and recheck VTE Prophylaxis. b.If the ICD-9-CM Principal Procedure Code is on Tables 5.23 or 5.24, continue processing. Proceed to step 34 and recheck ICD-9-CM Principal Procedure Code for Tables 5.23 and 5.24. Do not recheck steps 30, 31 and 33 VTE Prophylaxis or step 32 Reason for Not Administering VTE Prophylaxis. 30.Recheck VTE Prophylaxis only if the ICD-9-CM Principal Procedure Code is on Table 5.22 a.If any VTE Prophylaxis equals 2, 5, 6, or 8, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 2 or 5 or 6 or 8, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. 2.If VTE Timely equals No for VTE Prophylaxis of 2 and 5 and 6 and 8, continue processing and recheck VTE Prophylaxis. b.If none of the VTE Prophylaxis equals 2, 5, 6, or 8, continue processing and proceed to recheck VTE Prophylaxis. 31.Recheck VTE Prophylaxis a.If any VTE Prophylaxis equals 1, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 1, continue processing and check ICD-9-CM Principal or Other Diagnosis Codes. i.If any of the ICD-9-CM Principal or Other Diagnosis Codes is on Table 5.13, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.

	0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time
	ii.If none of the ICD-9-CM Principal or Other Diagnosis Codes is on Table 5.13, continue processing and recheck Reason for Not Administering VTE Prophylaxis. 2.If VTE Timely equals No for VTE Prophylaxis of 1, continue processing and recheck Reason for Not Administering VTE Prophylaxis. b.If none of the VTE Prophylaxis equals 1, continue processing and proceed to recheck Reason for Not Administering VTE Prophylaxis. Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) SCIP-VTE-2-19 32.Recheck Reason for Not Administering VTE Prophylaxis a.If Reason for Not Administering VTE Prophylaxis equals 1 or 4, continue processing and recheck Anesthesia Type. 1.If Anesthesia Type is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. 2.If Anesthesia Type equals 1 or 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 3.If Anesthesia Type equals 2 or 3, continue processing and recheck VTE Prophylaxis. b.If Reason for Not Administering VTE Prophylaxis equals 2, continue processing and proceed to recheck VTE Prophylaxis. 33.Recheck VTE Prophylaxis a.If any VTE Prophylaxis equals 3 or 7, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 3 or 7, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. 2.If VTE Timely equals No for VTE Prophylaxis of 3 and 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If none of the VTE Prophylaxis equals 3 or 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 34.Recheck ICD-9-CM Principal Procedure Code for Tables 5.23 and 5.24 only if the ICD-9-CM Principal Procedure Code is not on Tables 5.17, 5.19, 5.20, 5.21, or 5.22 a.If the ICD-9-CM Principal Procedure Code is on Table 5.23, continue processing and recheck VTE Prophylaxis. 1.If Any VTE Prophylaxis is equal to 2, 3, 5, 6, 7, or 8, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. i.If VTE Timely equals Yes for VTE Prophylaxis of 2 or 3 or 5 or 6 or 7 or 8, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. ii.If VTE Timely equals No for VTE Prophylaxis of 2 and 3 and 5 and 6 and 7 or 8, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 2.If none of the VTE Prophylaxis is equal to 2, 3, 5, 6, 7, or 8, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.24, continue processing and recheck VTE Prophylaxis. 35.Recheck VTE Prophylaxis a.If any VTE Prophylaxis equals 1, 2, 5, 6, or 8, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 1 or 2 or 5 or 6 or 8, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. 2.If VTE Timely equals No for VTE Prophylaxis of 1 and 2 and 5 and 6 and 8, continue processing and recheck Reason for Not Administering VTE Prophylaxis. b.If none of the VTE Prophylaxis equals 1, 2, 5, 6, or 8, continue processing and proceed to recheck Reason for Not Administering VTE Prophylaxis. 36.Recheck Reason for Not Administering VTE Prophylaxis a.If Reason for Not Administering VTE Prophylaxis equals 1 or 4, continue processing and recheck Anesthesia Type. 1.If Anesthesia Type is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. 2.If Anesthesia Type equals 1 or 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 3.If Anesthesia Type equals 2 or 3, continue processing and recheck VTE Prophylaxis.

	0218 Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time
	b.If Reason for Not Administering VTE Prophylaxis equals 2, continue processing and proceed to recheck VTE Prophylaxis. 37.Recheck VTE Prophylaxis a.If none of the VTE Prophylaxis equals 3, 4, or 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If any VTE Prophylaxis equals 3, 4, or 7, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 3 or 4 or 7, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. 2.If VTE Timely equals No for VTE Prophylaxis of 3 or 4 or 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.

APPENDIX B—NATIONAL VOLUNTARY CONSENSUS STANDARDS: SURGERY ENDORSEMENT MAINTENANCE 2010 STEERING COMMITTEE AND NQF STAFF

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*Melinda Murphy was a member of the project team until November 18, 2011.

APPENDIX C—COMPARISON OF RELATED MEASURES

AAA Repair

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
Status	Currently undergoing review	Currently undergoing review	Endorsed 9/2010	Currently undergoing review	Currently undergoing review
Steward	Agency for Healthcare Research and Quality	Agency for Healthcare Research and Quality	Leapfrog Group	Society for Vascular Surgery	Society for Vascular Surgery
Description	Count of adult hospital discharges in a one year time period with a procedure code of AAA repair.	Percent of adult hosptial discharges in a one-year time period with a procedure code of AAA repair and a diagnosis of AAA with an in-hospital death.	A reliability adjusted measure of AAA repair performance that optimally combines two important domains: AAA hospital volume and AAA operative mortality, to provide predictions on hospital AAA survival rates in patients age 18 and over.	Percentage of asymptomatic patients undergoing open repair of abdominal aortic aneurysms (AAA) who die while in hospital. This measure is proposed for both hospitals and individual providers.	Percentage of patients undergoing elective endovascular repair of asymptomatic abdominal aortic aneurysms (AAA) who die while in hospital. This measure is proposed for both hospitals and individual providers.
Type of Measure	Structure/management	Outcome	Outcome	Outcome	Outcome
Numerator	Discharges, age 18 years and older, with an abdominal aortic aneurysm repair procedure and a primary or secondary diagnosis of AAA. Time window: Time window can be determined by user,	Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator. Time window: Time window can be determined by user,	Survival rate for patients age 18 and over without AAA rupture who undergo an AAA repair. Time Window: During the hospital admission	Mortality following elective open repair of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs. Time window: Since hospitals have sufficient annual	Mortality following elective endovascular AAA repair of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs. Time window: Since hospitals have sufficient annual

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
	but is generally a calendar year.	but is generally a calendar year.		volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (i.e., reported as too low volume to report).	volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (i.e., reported as too low volume to report).
Numerator Details	ICD-9-CM AAA procedure codes: 3834 AORTA RESECTION & ANAST 3844 RESECT ABDM AORTA W REPL 3864 EXCISION OF AORTA 3971 ENDO IMPLANT OF GRAFT IN AORTA ICD-9-CM AAA	Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.	For the observed mortality, the hospital submits the observed deaths for AAA cases in patients without rupture as identified using the denominator and exclusion codes.	ANY registry that includes hospitalization details, AAA diameter and discharge status is required to identify patients for numerator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE)	ANY registry that includes hospitalization details, AAA diameter and discharge status is required to identify patients for numerator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
	diagnosis codes: 4413 RUPT ABD AORTIC ANEURYSM 4414 ABDOM AORTIC ANEURYSM			are examples of registries that record such information but the measure is not limited to these registries. Patients who died in hospital following elective open infrarenal AAA repair if their aneurysm was asymptomatic (< 6cm dia in men, <5.5 cm dia in women, judged by preoperative imaging (CT, MR or ultrasound)).	information but the measure is not limited to these registries. Patients who died in hospital following endovascular infrarenal AAA repair (EVAR) if their asymptomatic aneurysm was repaired electively and was asymptomatic (< 6cm dia in men, <5.5 cm dia in women, judged by preoperative imaging (CT, MR or ultrasound)).
Denominator	N/A	Discharges, age 18 years and older, with ICD-9-CM AAA repair code procedure and a diagnosis of AAA in any field. The denominator may be stratified by open vs. endovascular procedures, and ruptured vs. un-reuptured AAA. Time window: Time window can be determined by user, but is generally a	All hospital patients age 18 and over without rupture who had an AAA repair. Time Window: 12 months	All elective open repairs of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs. Time window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have	All elective endovascular repairs of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs. Time window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital.

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
		calendar year.		lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (i.e., reported as too low volume to report).	Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (i.e., reported as too low volume to report).
Denominator Categories	Female, Male; 18 and older	Female, Male; 18 and older		Female, Male; 18 years or older	Female, Male; 18 years or older
Denominator Details	N/A	Discharges, age 18 years and older, with ICD-9-CM AAA repair code procedure and a diagnosis of AAA in any field. ICD-9-CM AAA repair procedure codes: 3834 AORTA RESECTION & ANAST 3844 RESECT ABDM AORTA W REPL 3864 EXCISION OF AORTA 3971 ENDO IMPLANT OF GRAFT IN AORTA	For the volume predicted mortality, hospitals count the number of all AAA repair cases using the following procedure codes. ICD-9-CM Procedure Codes for AAA repair 3834 Aorta Resection & Anast 3844 Resection Abdominal Aorta with replacement 3864 Excision of aorta 3925 Aorta-iliac-femoral bypass 3971 Endo Implant of	ANY registry that includes hospitalization details, AAA diameter and discharge status is required to identify patients for denominator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such information but the measure is not	ANY registry that includes hospitalization details, AAA diameter and discharge status is required to identify patients for denominator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such information but the measure is not limited to these registries.

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
		ICD-9-CM AAA diagnosis codes: 4413 RUPT ABD AORTIC ANEURYSM 4414 ABDOM AORTIC ANEURYSM	Graft in Aorta For the observed mortality hospitals count the number of AAA repair cases that also have a diagnosis of unruptured AAA using the following codes. ICD-9CM Codes for AAA without rupture 441.4 Dissection of aorta aneurysm unspecified site 441.7 Thoracoabdominal aneurysm without rupture 441.9 Aortic aneurysm of unspecified site without rupture	limited to these registries. Patients who underwent elective open AAA repair are included if their aneurysm was asymptomatic (< 6cm dia in men, <5.5 cm dia in women, judged by preoperative imaging (CT, MR or ultrasound)).	Patients who underwent endovascular AAA repair are included if their aneurysm was asymptomatic (< 6cm dia in men, <5.5 cm dia in women, judged by preoperative imaging).
Exclusions	> 6 cm diameter - men > 5.5 cm diameter – women Symptomatic AAAs that required urgent/emergent (non-elective) repair	Exclude cases: • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or	Patients with ruptured aneurysm or thoracoabdominal aneurysms.	> 6 cm minor diameter - men > 5.5 cm minor diameter - women Symptomatic AAAs that required urgent/emergent (non-elective) repair	> 6 cm diameter - men > 5.5 cm diameter – women Symptomatic AAAs that required urgent/emergent (non-elective) repair

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
		principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium)			
Exclusion Details	This volume measure does not have a denominator.	Exclude cases: • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium)	For the count of all AAA procedures exclude: 3845 Thoracoabdominal procedures. For the observed mortality domain, exclude all Thoracic Diagnosis Codes and dissection codes for AAA 441.0x General code 441.1 Thoracic aneurysm ruptured 441.2 Thoracic aneurysm without rupture 441.3 Abdominal aneurysm ruptured 441.5 Aortic aneurysm of unspecified site ruptured 441.6 Thoracoabdominal	Patients undergoing non-elective open repair of symptomatic AAAs or those with AAAs larger than the diameters noted above.	Patients undergoing non-elective open repair of symptomatic AAAs or those with AAAs larger than the diameters noted above.

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
			aneurysm ruptured. Mortality Domain does exclude thoracic aneurysm Procedure Code: 38.45 Resection of vessel with replacement, other thoracic vessels.		
Risk Adjustment	No risk adjustment necessary	Risk adjustment method widely or commercially available. The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age in years (in 5-year age groups), All Patient Refined-Diagnosis Related Group (APR-DRG) and APR-DRG risk-of-mortality subclass. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for	We used an empirical Bayes approach to combine mortality rates with information on hospital volume at each hospital. In traditional empirical Bayes methods, a point estimate (e.g., mortality rate observed at a hospital) is adjusted for reliability by shrinking it towards the overall mean (e.g., overall mortality rate in the population). We modified this traditional approach by shrinking the observed mortality rate back toward the mortality rate	No risk adjustment necessary	No risk adjustment necessary

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
		the year 2008 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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. Risk adjustment factors: sex age 18-24; age 25-29; age 30-34; age 35-39; age 40-44; age 45-49; age 50-54; age 55-59; age 60-64; age 65-69; age 70-74; age 75-79; age 80-84; age 85+ each age category*female ADRG 1731 (other vascular procedures-	expected given the volume at that hospital—we refer to this as the "volume-predicted mortality". With this approach, the observed mortality rate is weighted according to how reliably it is estimated, with the remaining weight placed on the information regarding hospital volume [volume-predicted mortality]. Risk adjustment for patient characteristics is not used because in sensitivity analysis, composite measures based on an unadjusted mortality input and a risk-adjusted mortality input had a correlation of (.95) and thus were equally good at predicting future performance. The formula for		

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
		minor) ADRG 1732 (other vascular procedures-moderate) ADRG 1733 (other vascular procedures-major) ADRG 1734 (other vascular procedures-extreme) ADRG 1691 (major thoracic and abdominal vascular procedures-minor) ADRG 1692 (major thoracic and abdominal vascular procedures-moderate) ADRG 1693 (major thoracic and abdominal vascular procedures-major) ADRG 1694 (major thoracic and abdominal vascular procedures-extreme ADRG 9999 (other) MDC 5 (Cardiovascular) Transfer-in status	calculating the survival predictor has two components, one is a volume predicted mortality rate, and the second is an observed mortality rate. The volume predicted mortality rate reflects the hospitals experience performing AAA surgeries (thus, it includes all AAA surgeries) and uses mortality for all hospitals at that specific volume to create the volume predicted mortality. The input data from the hospitals for this domain is a volume count of all AAAs performed in the hospital. The second domain is the observed mortality, for this domain the population is the group of AAA cases		

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
			without rupture, the data needed for this domain is the number of observed deaths occurring for AAA cases without rupture, within the inpatient setting. The general composite measure calculation is as follows: Predicted Survival = 1-Predicted Mortality Predicted Mortality = (weight)*(mortality) + (1-weight)*(volume predicted mortality) Volume predicted mortality* = intercept - coefficient*ln(caseload), where the intercepts and coefficients are derived from regression using the NIS data and the caseload comes from the Leapfrog Hospital Survey (answer to question #1 for each		

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
			high-risk procedure). *Any negative values are reset to "0" Weight = mortality signal/(mortality signal + [mortality sigma/caseload]), where mortality signal and sigma are derived from the NIS data and the caseload comes from the Leapfrog Hospital Survey (answer to question #1 for each high-risk procedure). Method: We used an empirical Bayes approach to combine mortality rates with information on hospital volume at each hospital. In traditional empirical Bayes methods, a point estimate (e.g., mortality rate observed at a hospital) is adjusted for reliability by shrinking it towards the overall mean (e.g., overall		

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
			mortality rate in the population). We modified this traditional approach by shrinking the observed mortality rate back toward the mortality rate expected given the volume at that hospital—we refer to this as the "volume-predicted mortality". With this approach, the observed mortality rate is weighted according to how reliably it is estimated, with the remaining weight placed on the information regarding hospital volume [volume-predicted mortality]. Risk adjustment for patient characteristics is not used because in sensitivity analysis, composite measures based on an unadjusted mortality input and a risk-adjusted mortality		

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
			input had a correlation of (.95) and thus were equally good at predicting future performance. The formula for calculating the survival predictor has two components, one is a volume predicted mortality rate, and the second is an observed mortality rate. The volume predicted mortality rate reflects the hospitals experience performing AAA surgeries (thus, it includes all AAA surgeries) and uses mortality for all hospitals at that specific volume to create the volume predicted mortality. The input data from the hospitals for this domain is a volume count of all AAAs performed in the		

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
			hospital. The second domain is the observed mortality, for this domain the population is the group of AAA cases without rupture, the data needed for this domain is the number of observed deaths occurring for AAA cases without rupture, within the inpatient setting. The general composite measure calculation is as follows: Predicted Survival = 1-Predicted Mortality Predicted Mortality = (weight)*(mortality) + (1-weight)*(volume predicted mortality) Volume predicted mortality* = intercept - coefficient*ln(caseload), where the intercepts and		

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
			coefficients are derived from regression using the NIS data and the caseload comes from the Leapfrog Hospital Survey (answer to question #1 for each high-risk procedure). *Any negative values are reset to "0" Weight = mortality signal/(mortality signal + [mortality sigma/caseload]), where mortality signal and sigma are derived from the NIS data and the caseload comes from the Leapfrog Hospital Survey (answer to question #1 for each high-risk procedure).		
Stratification	The stratification of the denominator for open vs. endovascular and ruptured vs. unruptured involve the following codes in the denominator specification: AAA Repair	Gender, age (5-year age groups), race/ ethnicity, primary payer, custom The stratification of the denominator for open vs. endovascular and ruptured vs. unruptured involves the following codes in		N/A	N/A

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
	ICD-9-CM Procedure Codes: OPEN; 3834 =AORTA RESECTION & ANAST 3844 = RESECT ABDM AORTA W REPL 3864 = EXCISION OF AORTA ENDOVASCULAR; 3971 = ENDO IMPL GRFT ABD AORTA Include Only: AAA ICD-9-CM Diagnosis Codes: RUPTURED; 4413 = RUPT ABD AORTIC ANEURYSM UNRUPTURED 4414 = ABDOM AORTIC ANEURYSM	the denominator specification: AAA Repair ICD-9-CM Procedure Codes: OPEN 3834 = AORTA RESECTION & ANAST 3844= 1RESECT ABDM AORTA W REPL 3864 = EXCISION OF AORTA ENDOVASCULAR 3971 = ENDO IMPL GRFT ABD AORTA AAA ICD-9-CM Diagnosis Codes: RUPTURED 4413 = RUPT ABD AORTIC ANEURYSM UNRUPTURED 4414 = ABDOM AORTIC ANEURYSM			
Type Score	Count	Rate/proportion		Rate/proportion	Rate/proportion
Algorithm	The volume is the number of discharges with a diagnosis of, and a procedure for AAA.	Each indicator is expressed as a rate, is defined as outcome of interest / population at risk or numerator / denominator. The AHRQ Quality Indicators (AHRQ QI)		Identify denominator, exclude non-elective repair of symptomatic or ruptured patients and men with AAA >6 cm, and women with AAA >5.5, find	Identify denominator, exclude non-elective repair of symptomatic or ruptured patients and men with AAA >6 cm, and women with AAA >5.5, find number of deaths

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
		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 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		number of deaths Outcome = deaths/ # cases	Outcome = deaths/ # cases

	Maintenance Measure 0357: Abdominal aortic aneurysm (AAA) repair volume (IQI 4)	**Maintenance Measure 0359**: Abdominal aortic aneurysm (AAA) repair mortality rate (IQI 11)	**Endorsed Measure 0736:** Survival predictor for abdominal aortic aneurysm (AAA)	**New Candidate Standard 1523**: In-hospital mortality following elective open repair of AAAs	**New Candidate Standard 1534**: In-hospital mortality following elective EVAR of AAAs
		indirect standardization to account for case-mix. 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/IQI_download.htm			
Data Source	Electronic administrative data/claims	Electronic administrative data/claims	Electronic administrative data/claims	Registry data	Registry data
Level of Measurement /Analysis	Facility/agency	Facility/agency	Facility/agency	Clinicians: Individual, group; Facility/agency;	Clinicians: Individual, group; Facility/agency;
Care Settings	Hospital	Hospital	Hospital	Hospital	Hospital

Beta Blocker

	Endorsed Measure 0235: Pre-op beta blocker in patient with isolated CABG (1)	**Maintenance Measure 0127**: Pre-operative beta blockade	**Endorsed Measure 0236:** Pre-op beta-blocker in patient with isolated CABG (2)	**Maintenance Measure 0284:** Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
Status	Endorsed 5/2007	Currently undergoing maintenance review	Endorsed 5/2007	Currently undergoing maintenance review
Steward	Society of Thoracic Surgeons	Society of Thoracic Surgeons	Centers for Medicare & Medicaid Services	Centers for Medicare & Medicaid Services
Description	Percentage of procedures for which the patient received Beta Blockers within 24 hours preceding surgery/ Total number of isolated CABG procedures.	Percent of patients undergoing isolated CABG who received beta blockers within 24 hours preceding surgery.	Percentage of patients undergoing CABG with documented pre-operative beta blockade who had a coronary artery bypass graft	Percentage of patients on beta blocker therapy prior to admission who received a beta blocker during the peri-operative period. To be in the denominator, the patient must be on a beta-blocker prior to arrival. The case is excluded if the patient is not on a beta-blocker prior to arrival, as described below in 2a4.
Type of Measure	Process	Process	Process	Process
Numerator	Number of procedures for which the patient received Beta Blockers within 24 hours preceding surgery.	Number of procedures for which the patient received Beta Blockers within 24 hours preceding surgery.	Patients undergoing CABG with documented pre-operative beta blockade. 4115F Beta blocker administered within 24 hours prior to surgical incision	Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the peri-operative period.
Numerator Details		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".		Data element: Beta-Blocker Perioperative
Denominator	Total number of isolated CABG procedures.	Total number of isolated CABG procedures.	Patients with coronary artery bypass graft. CPT codes: 33510, 33511, 33512,	All surgery patients on beta blocker therapy prior to arrival.

	Endorsed Measure 0235: Pre-op beta blocker in patient with isolated CABG (1)	**Maintenance Measure 0127**: Pre-operative beta blockade	**Endorsed Measure 0236:** Pre-op beta-blocker in patient with isolated CABG (2)	**Maintenance Measure 0284:** Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
			33513, 33514, 33516, , 33533, 33534, 33535, 33536	All surgery patients on daily beta blocker therapy prior to arrival Data Element Data Collection Question: Is there documentation that the patient was on a daily beta-blocker therapy prior to arrival? Yes/No Notes for Abstraction: • If there is documentation that the beta-blocker was taken daily at "home" or is a "current" medication, select "Yes". • If a beta-blocker is listed as a home medication without designation of how often or when it is taken, select "Yes". • If there is documentation that the beta-blocker is a home/current medication and additional documentation indicates the beta-blocker was not taken daily, e.g., the medication reconciliation form lists a beta-blocker as a home/current medication, but documentation in the nurses notes state "patient denies taking beta-blocker every day", select "No". • If there is documentation that the beta-blocker is on a

	Endorsed Measure 0235: Pre-op beta blocker in patient with isolated CABG (1)	**Maintenance Measure 0127**: Pre-operative beta blockade	**Endorsed Measure 0236:** Pre-op beta-blocker in patient with isolated CABG (2)	**Maintenance Measure 0284:** Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
				schedule other than daily, select "No". • If there is documentation that the beta-blocker was given on a "prn" basis for cardiac or non-cardiac reasons, select "No".
Denominator Categories		Female, Male; 18 and older		Female, Male; Patients >/= 18 years of age
Denominator Details		Number of isolated CABG procedures excluding cases for which preoperative beta blockers were contraindicated. 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],		Data Elements: Admission Date Anesthesia Start Date Beta-Blocker Current Medication Beta-Blocker During Pregnancy Birthdate Clinical Trial Discharge Date ICD-9-CM Principal Procedure Code Laparoscope Perioperative Death Reason for Not Administering Beta-Blocker-Perioperative Sex

	Endorsed Measure 0235: Pre-op beta blocker in patient with isolated CABG (1)	**Maintenance Measure 0127**: Pre-operative beta blockade	**Endorsed Measure 0236:** Pre-op beta-blocker in patient with isolated CABG (2)	**Maintenance Measure 0284:** Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
		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 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		Cases are removed from the		• Patients less than 18 years of

	Endorsed Measure 0235: Pre-op beta blocker in patient with isolated CABG (1)	**Maintenance Measure 0127**: Pre-operative beta blockade	**Endorsed Measure 0236:** Pre-op beta-blocker in patient with isolated CABG (2)	**Maintenance Measure 0284:** Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
		denominator if preoperative beta blocker was contraindicated.		age • Patients who have a Length of Stay greater than 120 days • Patients enrolled in clinical trials • Patients whose ICD-9-CM principal procedure occurred prior to the date of admission • Patients who expired during the perioperative period • Pregnant patients taking a beta-blocker prior to arrival • Patients with a documented Reason for Not Administering Beta-Blocker-Perioperative • Patients with Ventriular Assist Devices or Heart Transplantation
Exclusion Details		Procedures with preoperative beta blockers [MedBeta (STS Adult Cardiac Surgery Database Version 2.73, Sequence number 1710)] marked as "Contraindicated"		Data Elements: Beta-Blocker During Pregnancy Clinical Trial Perioperative Death Reason for Not Administering Beta-Blocker-Perioperative
Risk Adjustment	No risk adjustment necessary	No risk adjustment necessary	No risk adjustment necessary	No risk adjustment necessary
Stratification		N/A	N/A	N/A
Type Score		Rate/proportion	Rate/proportion	Rate/proportion
Algorithm		N/A		Variable Key: Patient Age, Surgery Days 1. Start processing. Run cases that are included in the Surgical Care Improvement Project (SCIP) Initial Patient Population and pass the edits

	Endorsed Measure 0235: Pre-op beta blocker in patient with isolated CABG (1)	**Maintenance Measure 0127**: Pre-operative beta blockade	**Endorsed Measure 0236:** Pre-op beta-blocker in patient with isolated CABG (2)	**Maintenance Measure 0284:** Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
				defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Calculate Patient Age. The Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age. 3. Check Patient Age a. If Patient Age is less than 18 years, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If Patient Age is greater than or equal to 18 years, continue processing and proceed to Laparoscope. 4. Check Laparoscope a. If Laparoscope is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Laparoscope equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Laparoscope equals 2,

	Endorsed Measure 0235: Pre-op beta blocker in patient with isolated CABG (1)	**Maintenance Measure 0127**: Pre-operative beta blockade	**Endorsed Measure 0236:** Pre-op beta-blocker in patient with isolated CABG (2)	**Maintenance Measure 0284:** Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
				continue processing and proceed to Clinical Trial. 5.Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Clinical Trial equals No, continue processing and proceed to Anesthesia Start Date. 6.Check Anesthesia Start Date a. If the Anesthesia Start Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Anesthesia Start Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c. If Anesthesia Start Date equals a Non Unable To Determine Value, continue processing and proceed to the

	Endorsed Measure 0235: Pre-op beta blocker in patient with isolated CABG (1)	**Maintenance Measure 0127**: Pre-operative beta blockade	**Endorsed Measure 0236:** Pre-op beta-blocker in patient with isolated CABG (2)	**Maintenance Measure 0284:** Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
				Surgery Days calculation. 7. Calculate Surgery Days. Surgery Days, in days, is equal to the Anesthesia Start Date minus the Admission Date. 8. Check Surgery Days a. If the Surgery Days is less than zero, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b. If the Surgery Days is greater than or equal to zero, continue processing and proceed to Perioperative Death. 9. Check Perioperative Death a. If Perioperative Death is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Perioperative Death equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Perioperative Death equals No, continue processing and proceed to Beta-Blocker Current Medication. 10. Check Beta-Blocker Current Medication

	Endorsed Measure 0235: Pre-op beta blocker in patient with isolated CABG (1)	**Maintenance Measure 0127**: Pre-operative beta blockade	**Endorsed Measure 0236:** Pre-op beta-blocker in patient with isolated CABG (2)	**Maintenance Measure 0284:** Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
				a. If the Beta-Blocker Current Medication is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If the Beta-Blocker Current Medication equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If the Beta-Blocker Current Medication equals Yes, continue processing and proceed to Sex. 11.Check Sex a. If Sex is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Sex equals Female, continue processing and check Beta-Blocker During Pregnancy. 1. If Beta-Blocker During Pregnancy is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. 2. If Beta-Blocker During Pregnancy equals 1 or 3, the case will proceed to a Measure

	Endorsed Measure 0235: Pre-op beta blocker in patient with isolated CABG (1)	**Maintenance Measure 0127**: Pre-operative beta blockade	**Endorsed Measure 0236:** Pre-op beta-blocker in patient with isolated CABG (2)	**Maintenance Measure 0284:** Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
				Category Assignment of B and will not be in the Measure Population. Stop processing. 3. If Beta-Blocker During Pregnancy equals 2, continue processing and proceed to Beta-Blocker Preoperative. c. If Sex equals Male or Unknown, continue processing and proceed to Beta-Blocker Perioperative. 12. Check Beta-Blocker Perioperative a. If Beta-Blocker Perioperative is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Beta-Blocker Perioperative equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. c. If Beta-Blocker Perioperative equals No, continue processing and check Reason for Not Administering Beta-Blocker Perioperative. 13. Check Reason for Not Administering Beta-Blocker Perioperative a. If Reason for Not Administering Beta-Blocker

	Endorsed Measure 0235: Pre-op beta blocker in patient with isolated CABG (1)	**Maintenance Measure 0127**: Pre-operative beta blockade	**Endorsed Measure 0236:** Pre-op beta-blocker in patient with isolated CABG (2)	**Maintenance Measure 0284:** Surgery patients on beta blocker therapy prior to admission who received a beta blocker during the perioperative period
				Perioperative is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b. If Reason for Not Administering Beta-Blocker Perioperative equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c. If Reason for Not Administering Beta-Blocker Perioperative equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
Data Source	Registry	Registry	Electronic administrative data/claims	Electronic administrative data/claims; Paper medical record/flow sheet
Level of Measurement /Analysis	Clinicians: Individual	Clinicians: Facility/agency	Clinicians: Group, Clinicians: Individual, Facility/ Agency, Population: Community, Population: Counties or cities, Population: National, Population: Regional/ network, Population: States	Facility/agency, Population: National, Population: Regional
Care Settings	Hospital	Hospital	Hospital	Hospital

Cardiac Surgery

	Maintenance Measure 0113: Participation in a systematic database for cardiac surgery	**Endorsed Measure 0456:** Participation in a systematic national database for general thoracic surgery	**Endorsed Measure 0493:** Participation by a hospital, physician or other clinician in systematic clinical database registry that includes consensus endorsed quality measures
Status	Currently undergoing maintenance review	Endorsed 7/2008	Endorsed 9/2010
Steward	Society of Thoracic Surgeons	Society of Thoracic Surgeons	Centers for Medicare & Medicaid Services
Description	Participation in a clinical database with broad state, regional, or national representation, that provides regular performance reports based on benchmarked data	Participation in at least one multi-center, standardized data collection and feedback program that provides benchmarking of the physician's data relative to national and regional programs and uses process and outcome measures.	Participation in a systematic qualified clinical database registry involves: a. Hospital, physician or other clinician submits standardized data elements to registry b. Data elements are applicable to consensus endorsed quality measures c. Registry measures shall include at least two (2) representative NQF consensus endorsed measures for registry's clinical topic(s) and report on all patients eligible for the selected measures. d. Registry provides calculated measures results, benchmarking, and quality improvement information to individual hospitals, physicians and clinicians. e. Registry must receive data from more than 5 separate practices and may not be located (warehoused) at an individual hospital or an individual group's practice. Participation in a national or state-wide registry is encouraged for this measure. f. Registry may provide feedback directly to the hospital or provider's local registry if one exists.
Type of Measure	Structure/management	Process	Structure/management
Numerator	Does the facility participate in a clinical database with broad state, regional, or national representation, that provides	Whether or not the physician participates in at least one multi-center data collection and feedback program.	The hospital or clinician participates in a systematic qualified clinical database registry capable

	Maintenance Measure 0113: Participation in a systematic database for cardiac surgery	**Endorsed Measure 0456:** Participation in a systematic national database for general thoracic surgery	**Endorsed Measure 0493:** Participation by a hospital, physician or other clinician in systematic clinical database registry that includes consensus endorsed quality measures
	regular performance reports based on benchmarked data? (y/n) Time window: 12 months	Time window:	of the following: a. hospital, physician, or other clinician submits standardized data elements to registry b. data elements are applicable to consensus endorsed quality measures c. registry measures shall include at least two (2) representative NQF consensus endorsed measures for registry's clinical topic(s) and report on all patients eligible for the selected measures d. registry provides calculated measures results, benchmarking, and quality improvement information to individual hospitals, physicians and clinicians e. registry must receive data from more than 5 separate hospitals or practices and may not be located (warehoused) at an individual hospital, or an individual group's practice. Participation in a national or state-wide registry is encouraged for this measure f. registry may provide feedback directly to the hospital or provider's local registry if one exists.
Numerator Details	Participation in a clinical database with broad state, regional, or national representation, that provides regular performance reports based on benchmarked data. Participation in the STS Adult Cardiac Surgery Database, for example, is initiated by the surgeons and/or hospital and is defined as quarterly submission		N/A

	Maintenance Measure 0113: Participation in a systematic database for cardiac surgery	**Endorsed Measure 0456:** Participation in a systematic national database for general thoracic surgery	**Endorsed Measure 0493:** Participation by a hospital, physician or other clinician in systematic clinical database registry that includes consensus endorsed quality measures
	of 100% of cases via an approved software system to the Duke Clinical Research Institute, the data repository for the three STS Databases. STS's audit cross-checks submitted cases against hospital logs to assure all cases have been captured.		
Denominator	N/A	N/A	1
Denominator Categories	Female, Male; 18 years or older on date of encounter	Female, Male; 18 years or older	
Denominator Details	N/A		
Exclusions	N/A	N/A	N/A
Exclusions Details	N/A		N/A
Risk Adjustment	No risk adjustment necessary	No risk adjustment necessary	No risk adjustment necessary
Stratification	N/A	N/A	N/A
Type Score	Categorical		
Algorithm	N/A		N/A
Data Source	Registry data	Lab data, paper medical record/flow-sheet	
Level of Measurement /Analysis	Clinicians: Group; Facility/agency; Population: National, regional/network, states, counties or cities	Clinicians: Individual	Clinicians: Individual
Care Settings	Hospital	Ambulatory care: Clinic	

Cataracts

	New Candidate Measure 1536: Cataracts: Improvement in patient's visual function within 90 days following cataract surgery	**Endorsed Measure 0565**: Cataracts: 20/40 or better visual acuity within 90 days following cataract surgery
Status	Currently undergoing review	Endorsed 10/2009
Steward	American Academy of Ophthalmology and Hoskins Center for Quality Eye Care	American Medical Association-Physician Consortium for Performance Improvement
Description	Percentage of patients aged 18 years and older who had cataract surgery and had improvement in visual function achieved within 90 days following the cataract surgery.	Percentage of patients aged 18 years and older with a diagnosis of uncomplicated cataract who had cataract surgery and no significant ocular conditions impacting the visual outcome of surgery and had best-corrected visual acuity of 20/40 or better (distance or near) achieved within 90 days following the cataract surgery.
Type of Measure	Outcome	Outcome
Numerator	Patients 18 years and older in sample who had improvement in visual function achieved within 90 days following cataract surgery, based on pre-operative and post-operative visual function instrument.	Patients who had best-corrected visual acuity of 20/40 or better (distance or near) achieved within 90 days following cataract surgery.
Numerator Details	Patients 18 years and older in sample who had an improvement in their visual function achieved within 90 days following cataract surgery Patients in sample who completed a pre-operative and post-operative visual function instrument, and with the CPT Procedure Coses (with or without modifiers): 66840, 66850, 66852, 66920, 66930, 66940, 66982, 66983, 66984	Patients who had best-corrected visual acuity of 20/40 or better (distance or near) achieved within 90 days following cataract surgery CPT Category II code: 4175F-Best-corrected visual acuity of 20/40 or better (distance or near) achieved within the 90 days following cataract surgery
Denominator	All patients aged 18 years and older in sample who had cataract surgery.	All patients aged 18 years and older who had cataract surgery and no significant pre-operative ocular conditions impacting the visual outcome of surgery.
Denominator Categories	Female, Male; 18 years and older	
Denominator Details	Denominator (Eligible Population): All patients aged 18 years and older in sample who had cataract surgery • CPT Procedure Codes (with or without modifiers): 66840, 66850, 66852, 66920, 66930, 66940, 66982, 66983, 66984	All patients aged 18 years and older who had cataract surgery and no significant pre-operative ocular conditions impacting visual outcomes of surgery. CPT Procedure Codes (with or without modifiers): 66840, 66850, 66852, 66920, 66930, 66940, 66982, 66983, 66984 AND Patients aged 18 years and older
Exclusions		Patients with comorbid conditions that impact the visual outcome of surgery (See Denominator Exclusions Spreadsheet).
Exclusion Details		Patients with any of the following comorbid conditions that impact the visual outcome of surgery (See Denominator Exclusions Spreadsheet)
Risk	No risk adjustment necessary	No risk adjustment necessary

	New Candidate Measure 1536: Cataracts: Improvement in patient's visual function within 90 days following cataract surgery	**Endorsed Measure 0565**: Cataracts: 20/40 or better visual acuity within 90 days following cataract surgery
Adjustment		
Stratification	This measure can be stratified into two major groups: those patients with ocular co-morbidities and those patients without ocular co-morbidities. An improvement in visual function after cataract surgery would be expected in both groups, however the magnitude of the difference would vary by group. The Cataract Patient Outcomes Research Team found that an important preoperative patient characteristic that was independently associated with failure to improve on one of the outcomes measured (including the VF-14) was ocular comorbidity. The authors explained that this was expected, because it is reasonable to assume that other diseases that impair visual function would be correlated with a reduced improvement in functional status. The National Eye Care Outcomes Network also found that there were differences in the mean postoperative VF-14 scores across groups of patients with and without ocular co-morbidities, as seen in the table below. The study involving the Rasch-scaled short version of the VF-14 also found differences between the preoperative and postoperative visual function test scores and differences between preoperative and postoperative visual function tests, as seen below. National Eyecare Outcomes Network Mean VF-14 (postoperative) - Total 92.7 - With ocular comorbidity 89.9 - Without ocular comorbidity 94.6 Rasch-Scaled Short Version of the VF-14 Patients without Ocular Comorbidity - Preop VF-8R - 68.87 Postop VF-8R - 86.22 Mean Diff = 17.35 Patients with Ocular Comorbidity - Preop VF-8R - 67.71 Postop VF-8R - 81.58 Mean Diff = 13.87 A list of codes for comorbidities can be found in the AMA PCPI measure for 20/40 visual acuity after cataract surgery: Acute and subacute iridocyclitis 364.00 Acute and subacute iridocyclitis 364.01 Acute and subacute iridocyclitis 362.02 Acute and subacute iridocyclitis 364.03 Acute and subacute iridocyclitis 364.04 Acute and subacute iridocyclitis 364.05	

	New Candidate Measure 1536: Cataracts: Improvement in patient's visual function within 90 days following cataract surgery	**Endorsed Measure 0565**: Cataracts: 20/40 or better visual acuity within 90 days following cataract surgery
	Amblyopia 368.01 Amblyopia 368.02 Amblyopia 368.03 Burn confined to eye and adnexa 940.0 Burn confined to eye and adnexa 940.1 Burn confined to eye and adnexa 940.2 Burn confined to eye and adnexa 940.3 Burn confined to eye and adnexa 940.4 Burn confined to eye and adnexa 940.5 Burn confined to eye and adnexa 940.9 Cataract secondary to ocular disorders 366.32 Cataract secondary to ocular disorders 366.33 Certain types of iridocyclitis 364.21 Certain types of iridocyclitis 364.22 Certain types of iridocyclitis 364.23 Certain types of iridocyclitis 364.24 Certain types of iridocyclitis 364.3 Choroidal degenerations 363.43 Choroidal detachment 363.72 Choroidal hemorrhage and rupture 363.61 Choroidal hemorrhage and rupture 363.62 Choroidal hemorrhage and rupture 363.63 Chorioretinal scars 363.30 Chorioretinal scars 363.31 Chorioretinal scars 363.32 Chorioretinal scars 363.33 Chorioretinal scars 363.35 Chronic iridocyclitis 364.10 Chronic iridocyclitis 364.11 Cloudy cornea 371.01 Cloudy cornea 371.02 Cloudy cornea 371.03 Cloudy cornea 371.04 Corneal edema 371.20 Corneal edema 371.21 Corneal edema 371.22 Corneal edema 371.23 Corneal edema 371.43 Corneal edema 371.44 Corneal opacity and other disorders of cornea 371.00 Corneal opacity and other disorders of cornea 371.03 Corneal opacity and other disorders of cornea 371.04 Degenerative disorders of globe 360.20 Degenerative disorders of globe 360.21 Degenerative disorders of globe 360.23 Degenerative disorders of globe 360.24 Degenerative disorders of globe 360.29 Degeneration of macula and posterior pole 362.50	

	New Candidate Measure 1536: Cataracts: Improvement in patient's visual function within 90 days following cataract surgery	**Endorsed Measure 0565**: Cataracts: 20/40 or better visual acuity within 90 days following cataract surgery
	Degeneration of macula and posterior pole 362.51 Degeneration of macula and posterior pole 362.52 Degeneration of macula and posterior pole 362.53 Degeneration of macula and posterior pole 362.54 Degeneration of macula and posterior pole 362.55 Degeneration of macula and posterior pole 362.56 Degeneration of macula and posterior pole 362.57 Disseminated chorioretinitis and disseminated retinochoroiditis 363.10 Disseminated chorioretinitis and disseminated retinochoroiditis 363.11 Disseminated chorioretinitis and disseminated retinochoroiditis 363.12 Disseminated chorioretinitis and disseminated retinochoroiditis 363.13 Disseminated chorioretinitis and disseminated retinochoroiditis 363.14 Disseminated chorioretinitis and disseminated retinochoroiditis 363.15 Diabetic retinopathy 362.01 Diabetic retinopathy 362.02 Diabetic retinopathy 362.03 Diabetic retinopathy 362.04 Diabetic retinopathy 362.05 Diabetic retinopathy 362.06 Diabetic macular edema 362.07 Disorders of optic chiasm 377.51 Disorders of optic chiasm 377.52 Disorders of optic chiasm 377.53 Disorders of optic chiasm 377.54 Disorders of visual cortex 377.75 Focal chorioretinitis and focal retinochoroiditis 363.00 Focal chorioretinitis and focal retinochoroiditis 363.01 Focal chorioretinitis and focal retinochoroiditis 363.03 Focal chorioretinitis and focal retinochoroiditis 363.04 Focal chorioretinitis and focal retinochoroiditis 363.05 Focal chorioretinitis and focal retinochoroiditis 363.06 Focal chorioretinitis and focal retinochoroiditis 363.07 Focal chorioretinitis and focal retinochoroiditis 363.08 Glaucoma 365.10 Glaucoma 365.11 Glaucoma 365.12 Glaucoma 365.13	

	New Candidate Measure 1536: Cataracts: Improvement in patient's visual function within 90 days following cataract surgery	**Endorsed Measure 0565**: Cataracts: 20/40 or better visual acuity within 90 days following cataract surgery
	Glaucoma 365.14 Glaucoma 365.15 Glaucoma 365.20 Glaucoma 365.21 Glaucoma 365.22 Glaucoma 365.23 Glaucoma 365.24 Glaucoma 365.31 Glaucoma 365.32 Glaucoma 365.51 Glaucoma 365.52 Glaucoma 365.59 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.41 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.42 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.43 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.44 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.60 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.61 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.62 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.63 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.64 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.65 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.81 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.82 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.83 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.89 Glaucoma associated with congenital anomalies, dystrophies, and systemic syndromes 365.9 Hereditary corneal dystrophies 371.50 Hereditary corneal dystrophies 371.51 Hereditary corneal dystrophies 371.52 Hereditary corneal dystrophies 371.53 Hereditary corneal dystrophies 371.54 Hereditary corneal dystrophies 371.55 Hereditary corneal dystrophies 371.56 Hereditary corneal dystrophies 371.57 Hereditary corneal dystrophies 371.58	

	New Candidate Measure 1536: Cataracts: Improvement in patient's visual function within 90 days following cataract surgery	**Endorsed Measure 0565**: Cataracts: 20/40 or better visual acuity within 90 days following cataract surgery
	Hereditary choroidal dystrophies 363.50 Hereditary choroidal dystrophies 363.51 Hereditary choroidal dystrophies 363.52 Hereditary choroidal dystrophies 363.53 Hereditary choroidal dystrophies 363.54 Hereditary choroidal dystrophies 363.55 Hereditary choroidal dystrophies 363.56 Hereditary choroidal dystrophies 363.57 Hereditary retinal dystrophies 362.70 Hereditary retinal dystrophies 362.71 Hereditary retinal dystrophies 362.72 Hereditary retinal dystrophies 362.73 Hereditary retinal dystrophies 362.74 Hereditary retinal dystrophies 362.75 Hereditary retinal dystrophies 362.76 High myopia 360.20 High myopia 360.21 Injury to optic nerve and pathways 950.0 Injury to optic nerve and pathways 950.1 Injury to optic nerve and pathways 950.2 Injury to optic nerve and pathways 950.3 Injury to optic nerve and pathways 950.9 Keratitis 370.03 Moderate or severe impairment, better eye, profound impairment lesser eye 369.10 Moderate or severe impairment, better eye, profound impairment lesser eye 369.11 Moderate or severe impairment, better eye, profound impairment lesser eye 369.12 Moderate or severe impairment, better eye, profound impairment lesser eye 369.13 Moderate or severe impairment, better eye, profound impairment lesser eye 369.14 Moderate or severe impairment, better eye, profound impairment lesser eye 369.15 Moderate or severe impairment, better eye, profound impairment lesser eye 369.16 Moderate or severe impairment, better eye, profound impairment lesser eye 369.17 Moderate or severe impairment, better eye, profound impairment lesser eye 369.18 Nystagmus and iother irregular eye movements 379.51 Open wound of eyeball 871.0 Open wound of eyeball 871.1 Open wound of eyeball 871.2 Open wound of eyeball 871.3 Open wound of eyeball 871.4 Open wound of eyeball 871.5 Open wound of eyeball 871.6 Open wound of eyeball 871.7	

	New Candidate Measure 1536: Cataracts: Improvement in patient's visual function within 90 days following cataract surgery	**Endorsed Measure 0565**: Cataracts: 20/40 or better visual acuity within 90 days following cataract surgery
	Open wound of eyeball 871.9 Optic atrophy 377.10 Optic atrophy 377.11 Optic atrophy 377.12 Optic atrophy 377.13 Optic atrophy 377.14 Optic atrophy 377.15 Optic atrophy 377.16 Optic neuritis 377.30 Optic neuritis 377.31 Optic neuritis 377.32 Optic neuritis 377.33 Optic neuritis 377.34 Optic neuritis 377.39 Other background retinopathy and retinal vascular changes 362.12 Other background retinopathy and retinal vascular changes 362.16 Other background retinopathy and retinal vascular changes 362.18 Other corneal deformities 371.70 Other corneal deformities 371.71 Other corneal deformities 371.72 Other corneal deformities 371.73 Other disorders of optic nerve 377.41 Other disorders of sclera 379.11 Other disorders of sclera 379.12 Other endophthalmitis 360.11 Other endophthalmitis 360.12 Other endophthalmitis 360.13 Other endophthalmitis 360.14 Other endophthalmitis 360.19 Other retinal disorders 362.81 Other retinal disorders 362.82 Other retinal disorders 362.83 Other retinal disorders 362.84 Other retinal disorders 362.85 Other retinal disorders 362.89 Other and unspecified forms of chorioretinitis and retinochoroiditis 363.20 Other and unspecified forms of chorioretinitis and retinochoroiditis 363.21 Other and unspecified forms of chorioretinitis and retinochoroiditis 363.22 Prior penetrating keratoplasty 371.60 Prior penetrating keratoplasty 371.61 Prior penetrating keratoplasty 371.62 Profound impairment, both eyes 369.00 Profound impairment, both eyes 369.01 Profound impairment, both eyes 369.02 Profound impairment, both eyes 369.03	

	New Candidate Measure 1536: Cataracts: Improvement in patient's visual function within 90 days following cataract surgery	**Endorsed Measure 0565**: Cataracts: 20/40 or better visual acuity within 90 days following cataract surgery
	Profound impairment, both eyes 369.04 Profound impairment, both eyes 369.05 Profound impairment, both eyes 369.06 Profound impairment, both eyes 369.07 Profound impairment, both eyes 369.08 Purulent endophthalmitis 360.00 Purulent endophthalmitis 360.01 Purulent endophthalmitis 360.02 Purulent endophthalmitis 360.03 Purulent endophthalmitis 360.04 Retinal detachment with retinal defect 361.00 Retinal detachment with retinal defect 361.01 Retinal detachment with retinal defect 361.02 Retinal detachment with retinal defect 361.03 Retinal detachment with retinal defect 361.04 Retinal detachment with retinal defect 361.05 Retinal detachment with retinal defect 361.06 Retinal detachment with retinal defect 361.07 Retinal vascular occlusion 362.31 Retinal vascular occlusion 362.32 Retinal vascular occlusion 362.35 Retinal vascular occlusion 362.36 Retinopathy of prematurity 362.21 Scleritis and episcleritis 379.04 Scleritis and episcleritis 379.05 Scleritis and episcleritis 379.06 Scleritis and episcleritis 379.07 Scleritis and episcleritis 379.09 Separation of retinal layers 362.41 Separation of retinal layers 362.42 Separation of retinal layers 362.43 Uveitis 360.11 Uveitis 360.12 Visual field defects 368.41 References: 1. Schein OD, Steinberg EP, Cassard SD et al. Predictors of outcome in patients who underwent cataract surgery. Ophthalmology 1995; 102:817-23. 2. Lum F, Schachat AP, Jampel HD. The development and demise of a cataract surgery database. Jt Comm J Qual Improv. 2002 Mar;28(3):108-14. 3. Gothwal VK, Wright TA, Lamoureux EL, Pesudovs K. Measuring outcomes of cataract surgery using the Visual Function Index-14. J Cataract Refract Surg 2010; 36:1181-8.	
Type Score	Rate/proportion	
Algorithm	Calculation for Reporting: The calculation of the measure would be determination of the number of patients in the sample who demonstrated improvement in visual function based on the pre-	

	New Candidate Measure 1536: Cataracts: Improvement in patient's visual function within 90 days following cataract surgery	**Endorsed Measure 0565**: Cataracts: 20/40 or better visual acuity within 90 days following cataract surgery
	operative and post-operative visual function instrument over the number of patients in the sample who had cataract surgery.	
Data Source	Survey: Patient	Electronic administrative data/claims, electronic health/medical record, paper medical record/flow-sheet
Level of Measurement /Analysis	Clinicians: Individual	Clinicians: Individual, group
Care Settings	Ambulatory care: Ambulatory surgery center, clinic/urgent care, clinician office	Ambulatory care: Clinic

Esophagectomy

	Maintenance Measure 0360: Esophageal resection mortality rate (IQI 8)	**Maintenance Measure 0361:** Esophageal resection volume (IQI 1)	**Endorsed Measure 0737:** Survival predictor for esophagectomy surgery
Status	Currently undergoing maintenance review	Currently undergoing maintenance review	Endorsed 9/2010
Steward	Agency for Healthcare Research and Quality	Agency for Healthcare Research and Quality	Leapfrog Group
Description	Number of inpatient deaths per 100 discharges with a procedure for esophageal resection	Number of discharges with a procedure for esophageal resection.	A reliability adjusted measure of Esophagectomy surgical performance that optimally combines two important domains: Esophagectomy hospital volume and Esophagectomy operative mortality, to provide predictions on hospital Esophagectomy survival rates in patients age 18 and over.
Type of Measure	Outcome	Structure/management	Outcome
Numerator	Number of deaths among cases meeting the inclusion and exclusion rules for the denominator Time window: inpatient admission	Discharges, age 18 years and older, with ICD-9-CM code for esophageal resection in any procedure field OR gastrectomy procedure code ONLY if accompanied by selected diagnosis codes. Time window: Time period is user defined. Users of the measure typically use a 12 month time period.	Outcome: Survival of esophageal cancer patients who undergo an esophagectomy Time window: during the hospital admission
Numerator Details	Discharge disposition of death (DISP=20)	CD-9-CM esophageal resection procedure codes: 424 ESOPHAGECTOMY 4240 ESOPHAGECTOMY NOS 4241 PARTIAL ESOPHAGECTOMY 4242 TOTAL ESOPHAGECTOMY 425 THORAC ESOPHAG ANAST 4251 THORAC ESOPHAGOESOPHAGOS 4252 THORAC ESOPHAGOGASTROST 4253 THORAC SM BOWEL INTERPOS 4254 THORAC ESOPHAGOENTER NEC 4255 THORAC LG BOWEL INTERPOS 4256 THORAC ESOPHAGOCOLOS NEC	For the observed mortality, the hospital submits the observed deaths for esophagectomy cases in patients with esophageal cancer as identified using the population codes

	Maintenance Measure 0360: Esophageal resection mortality rate (IQI 8)	**Maintenance Measure 0361:** Esophageal resection volume (IQI 1)	**Endorsed Measure 0737:** Survival predictor for esophagectomy surgery
		4258 THORAC INTERPOSITION NEC 4259 THORAC ESOPHAG ANAST NEC 426 STERN ESOPHAG ANAST 4261 STERN ESOPHAGOESOPHAGOST 4262 STERN ESOPHAGOGASTROSTOM 4263 STERN SM BOWEL INTERPOS 4264 STERN ESOPHAGOENTER NEC 4265 STERN LG BOWEL INTERPOS 4266 STERN ESOPHAGOCOLOS NEC 4268 STERN INTERPOSITION NEC 4269 STERN ESOPHAG ANAST NEC OR ICD-9-CM gastrectomy procedure code: 4399 OTHER TOTAL GASTRECTOMY ONLY if accompanied by selected diagnosis codes 1500 MALIGNANT NEOPLASM OF ESOPHAGUS, CERVICAL 1501 MALIGNANT NEOPLASM OF ESOPHAGUS, THORACIC 1502 MALIGNANT NEOPLASM OF ESOPHAGUS, ABDOMINAL 1503 MALIGNANT NEOPLASM OF ESOPHAGUS, UPPER THIRD OF 1504 MALIGNANT NEOPLASM OF ESOPHAGUS, MIDDLE THIRD OF 1505 MALIGNANT NEOPLASM OF ESOPHAGUS, LOWER THIRD OF 1508 MALIGNANT NEOPLASM OF ESOPHAGUS, OTHER SPECIFIED PART 1509 MALIGNANT NEOPLASM OF ESOPHAGUS, UNSPECIFIED	

	Maintenance Measure 0360: Esophageal resection mortality rate (IQI 8)	**Maintenance Measure 0361:** Esophageal resection volume (IQI 1)	**Endorsed Measure 0737:** Survival predictor for esophagectomy surgery
		Exclude cases: MDC 14 (pregnancy, childbirth, and puerperium)	
Denominator	Discharges, ages 18 years and older, with ICD-9-CM esophageal resection procedure code and a diagnosis code of esophageal cancer in any field OR gastrectomy procedure code ONLY if accompanied by selected diagnosis codes. Time window: user defined; usually a calendar year	N/A	Included population: all hospital patients age 18 and older with esophageal cancer who had an esophagectomy. Time window: 12 months
Denominator Categories	Female, Male: 18 and older	Female, Male: 18 and older	
Denominator Details	ICD-9-CM esophageal resection procedure codes: 424 ESOPHAGECTOMY 4240 ESOPHAGECTOMY NOS 4241 PARTIAL ESOPHAGECTOMY 4242 TOTAL ESOPHAGECTOMY 425 THORAC ESOPHAG ANAST 4251 THORAC ESOPHAGOESOPHAGOS 4252 THORAC ESOPHAGOGASTROST 4253 THORAC SM BOWEL INTERPOS 4254 THORAC ESOPHAGOENTER NEC 4255 THORAC LG BOWEL INTERPOS 4256 THORAC ESOPHAGOCOLOS NEC 4258 THORAC INTERPOSITION NEC 4259 THORAC ESOPHAG ANAST NEC 426 STERN ESOPHAG ANAST 4261 STERN ESOPHAGOESOPHAGOST 4262 STERN ESOPHAGOGASTROSTOM	N/A	For the volume predicted mortality, hospitals count the number of esophagectomy cases using the following codes. ICD-9-CM Procedure Codes for Esophagectomy 424 Esophagectomy 4240 Esophagectomy NOS 4241 Partial Esophagectomy 4242 Total Esophagectomy 4399 Total gastrectomy NEC For the observed mortality hospitals count the number of esophagectomy cases that also have an esophageal cancer diagnosis using the following codes. ICD-9-CM Codes for Esophageal Cancer 1500 MAL NEO CERVICAL ESOPHAG 1501 MAL NEO THORACIC ESOPHAG 1502 MAL NEO ABDOMIN ESOPHAG 1503 MAL NEO UPPER 3RD ESOPH 1504 MAL NEO MIDDLE 3RD ESOPH

	Maintenance Measure 0360: Esophageal resection mortality rate (IQI 8)	**Maintenance Measure 0361:** Esophageal resection volume (IQI 1)	**Endorsed Measure 0737:** Survival predictor for esophagectomy surgery
	4263 STERN SM BOWEL INTERPOS 4264 STERN ESOPHAGOENTER NEC 4265 STERN LG BOWEL INTERPOS 4266 STERN ESOPHAGOCOLOS NEC 4268 STERN INTERPOSITION NEC 4269 STERN ESOPHAG ANAST NEC ONLY if selected diagnosis codes: esophageal cancer (see below) gastrointestinal-related cancer (see below) OR: ICD-9-CM gastrectomy procedure code: 4399 OTHER TOTAL GASTRECTOMY - ONLY if selected diagnosis codes: esophageal cancer (see below) Esophageal cancer: 1500 MALIGNANT NEOPLASM OF ESOPHAGUS, CERVICAL 1501 MALIGNANT NEOPLASM OF ESOPHAGUS, THORACIC 1502 MALIGNANT NEOPLASM OF ESOPHAGUS, ABDOMINAL 1503 MALIGNANT NEOPLASM OF ESOPHAGUS, UPPER THIRD OF 1504 MALIGNANT NEOPLASM OF ESOPHAGUS, MIDDLE THIRD OF 1505 MALIGNANT NEOPLASM OF ESOPHAGUS, LOWER THIRD OF		1505 MAL NEO LOWER 3RD ESOPH 1508 MAL NEO ESOPHAGUS NEC 1509 MAL NEO ESOPHAGUS NOS

	Maintenance Measure 0360: Esophageal resection mortality rate (IQI 8)	**Maintenance Measure 0361:** Esophageal resection volume (IQI 1)	**Endorsed Measure 0737:** Survival predictor for esophagectomy surgery
	1508 MALIGNANT NEOPLASM OF ESOPHAGUS, OTHER SPECIFIED PART 1509 MALIGNANT NEOPLASM OF ESOPHAGUS, UNSPECIFIED Gastrointestinal cancer 1510 MALIGNANT NEOPLASM OF STOMACH, CARDIA 1978 SECONDARY MALIGNANT NEOPLASM OF RESPIRATORY AND DIGESTIVE SYSTEMS, OTHER DIGESTIVE ORGANS AND SPLEEN 2301 CARCINOMA IN SITU OF DIGESTIVE ORGANS, ESOPHAGUS 2355 NEOPLASM OF UNCERTAIN BEHAVIOR OF DIGESTIVE AND RESPIRATORY SYSTEMS, OTHER AND UNSPECIFIED DIGESTIVE ORGANS		
Exclusions	Missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing) Transferring to another short-term hospital (DISP=20 MDC 14 (pregnancy, childbirth, and puerperium)	N/A	Patients without a diagnosis of esophageal cancer;
Exclusions Details	Exclude cases: • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium)	N/A	Esophagectomy cases without an esophageal cancer diagnosis code

	Maintenance Measure 0360: Esophageal resection mortality rate (IQI 8)	**Maintenance Measure 0361:** Esophageal resection volume (IQI 1)	**Endorsed Measure 0737:** Survival predictor for esophagectomy surgery
Risk Adjustment	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 used in the regression is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007, a database consisting of approximately 35 million discharges from 43 states. 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.	No risk adjustment necessary	Method: We used an empirical Bayes approach to combine mortality rates with information on hospital volume at each hospital. In traditional empirical Bayes methods, a point estimate (e.g., mortality rate observed at a hospital) is adjusted for reliability by shrinking it towards the overall mean (e.g., overall mortality rate in the population). We modified this traditional approach by shrinking the observed mortality rate back toward the mortality rate expected given the volume at that hospital—we refer to this as the "volume-predicted mortality". With this approach, the observed mortality rate is weighted according to how reliably it is estimated, with the remaining weight placed on the information regarding hospital volume [volume-predicted mortality]. Risk adjustment for patient characteristics is not used because in sensitivity analysis, composite measures based on an unadjusted mortality input and a risk-adjusted mortality input had a correlation of (.95) and thus were equally good at predicting future performance. The formula for calculating the survival predictor has two components, one is a volume predicted mortality rate, and the second is an observed mortality rate. The volume predicted mortality rate reflects the hospitals experience performing Esophagectomy surgeries (thus, it includes all Esophagectomy surgeries) and uses mortality for all hospitals at that specific volume to create

	Maintenance Measure 0360: Esophageal resection mortality rate (IQI 8)	**Maintenance Measure 0361:** Esophageal resection volume (IQI 1)	**Endorsed Measure 0737:** Survival predictor for esophagectomy surgery
			the volume predicted mortality. The input data from the hospitals for this domain is a volume count of all Esophagectomys performed in the hospital. The second domain is the observed mortality, for this domain the population is narrowed to a homogenous group of esophagectomy with a diagnosis of cancer, the data needed for this domain is the number of observed deaths occurring for esophagectomy cases with cancer, within the inpatient setting. The general composite measure calculation is as follows: Predicted Survival = 1-Predicted Mortality Predicted Mortality = (weight)*(mortality) + (1-weight)*(volume predicted mortality) Volume predicted mortality* = intercept - coefficient*ln(caseload), where the intercepts and coefficients are derived from regression using the NIS data and the caseload comes from the Leapfrog Hospital Survey (answer to question #1 for each high-risk procedure). *Any negative values are reset to "0" Weight = mortality signal/(mortality signal + [mortality sigma/caseload]), where mortality signal and sigma are derived from the NIS data and the caseload comes from the Leapfrog Hospital Survey (answer to question #1 for each high-risk procedure).
Stratification	Observed rates may be stratified by age group, race/ethnicity categories, payer categories and sex.	N/A	N/A

	Maintenance Measure 0360: Esophageal resection mortality rate (IQI 8)	**Maintenance Measure 0361:** Esophageal resection volume (IQI 1)	**Endorsed Measure 0737:** Survival predictor for esophagectomy surgery
Type Score	Rate/proportion	Count	
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 mark inpatient records containing outcomes of interest. 2) Identify populations at risk. For provider IQIs populations at risk are derived from hospital discharge records. 3) Calculate observed rates. Using output data from steps 1 and 2, IQI rates are calculated for user-specified combinations of stratifiers. 4) Risk adjust the IQI rates. Regression coefficients from a reference population database are applied to the observed rates in the risk-adjustment process. The risk-adjusted rates will then reflect the age and APR-DRG distribution of data in the reference population. 5) Create multivariate signal extraction (MSX) smoothed rates. Shrinkage factors are applied to the risk-adjusted rates for each IQI in the MSX process. For each IQI, the shrinkage estimate reflects a reliability adjustment unique to each indicator. Full information on IQI algorithms and specification can be found at http://qualityindicators.ahrq.gov/iqi_download.htm.	The volume is the number of discharges with a procedure for esophageal resection	
Data Source	Electronic administrative data/claims	Electronic administrative data/claims	Electronic administrative data/ claims
Level of Measurement /Analysis	Facility/agency	Facility/agency	Facility/agency
Care Settings	Hospital	Hospital	Hospital

Failure to Rescue

	Maintenance Measure 0351: Death among surgical inpatients with serious, treatable complications (PSI 4)	**Maintenance Measure 0352**: Failure to rescue in-hospital mortality (risk adjusted)	**Maintenance Measure 0353:** Failure to rescue 30-day mortality (risk adjusted)
Status	Currently undergoing review	Currently undergoing review	Currently undergoing review
Steward	Agency for Healthcare Research and Quality	Children's Hospital of Philadelphia	Children's Hospital of Philadelphia
Description	Percentage of cases having developed specified complications of care with an in-hospital death.	Percentage of patients who died with a complication in the hospital.	Percentage of patients who died with a complication within 30 days from admission.
Type of Measure	Outcome	Outcome	Outcome
Numerator	All discharges with a disposition of "deceased" (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.	Patients who died with a complication plus patients who died without documented complications. Death is defined as death in the hospital. All patients in an FTR analysis have developed a complication (by definition). Complicated patient has at least one of the complications defined in Appendix B (see website http://www.research.chop.edu/programs/cor/outcomes.php). Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission. Comorbidities are defined in Appendix C (see website http://www.research.chop.edu/programs/cor/outcomes.php) using secondary ICD9 diagnosis codes of the current admission and primary or secondary ICD9 diagnosis codes of previous admission within 90 days of the admission date of the current admission. *When physician part B is available, the definition of complications and comorbidities are augmented to include CPT codes.	Patients who died with a complication plus patients who died without documented complications. Death is defined as death within 30 days from admission. All patients in an FTR analysis have developed a complication (by definition). Complicated patient has at least one of the complications defined in Appendix B (see website http://www.research.chop.edu/programs/cor/outcomes.php). Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission. Comorbidities are defined in Appendix C (see website http://www.research.chop.edu/programs/cor/outcomes.php) using secondary ICD9 diagnosis codes of the current admission and primary or secondary ICD9 diagnosis codes of previous admission within 90 days of the admission date of the current admission. *When physician part B is available, the definition of complications and comorbidities are augmented to include CPT codes.
Numerator Details	All discharges with a disposition of "deceased" (DISP=20) among cases meeting the inclusion and exclusion rules for the	Patients who died with complication and patients who died without documented complications. Death is defined as death in the hospital.	Patients who died with complication and patients who died without documented complications. Death is defined as death within 30 days from

	Maintenance Measure 0351: Death among surgical inpatients with serious, treatable complications (PSI 4)	**Maintenance Measure 0352**: Failure to rescue in-hospital mortality (risk adjusted)	**Maintenance Measure 0353:** Failure to rescue 30-day mortality (risk adjusted)
	denominator.		admission.
Denominator	All surgical discharges age 18 years and older or MDC 14 (pregnancy, childbirth, and puerperium) defined by specific DRGs or MS-DRGs and an ICD-9-CM code for an operating room procedure, principal procedure within 2 days of admission OR admission type of elective (ATYPE=3) with potential complications of care listed in Death among Surgical definition (e.g., pneumonia, DVT/PE, sepsis, shock/cardiac arrest, or GI hemorrhage/acute ulcer).	General Surgery, Orthopedic and Vascular patients in specific DRGs with complications plus patients who died in the hospital without complications. Inclusions: adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see appendix A http://www.research.chop.edu/programs/cor/outcomes.php)	General Surgery, Orthopedic and Vascular patients in specific DRGs with complications plus patients who died in the hospital without complications. Inclusions: adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see appendix A http://www.research.chop.edu/programs/cor/outcomes.php) Inclusions: adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see appendix A)
Denominator Categories	Female; 18 and older	Female, Male; 18-90	Female, Male; 18-90
Denominator Details	All surgical discharges age 18 years and older or MDC 14 (pregnancy, childbirth, and puerperium) defined by specific DRGs or MS-DRGs and an ICD-9-CM code for an operating room procedure, principal procedure within 2 days of admission OR admission type of elective (ATYPE=3) with potential complications of care listed in Death among Surgical definition (pneumonia, DVT/PE, sepsis, shock/cardiac arrest, or GI hemorrhage/acute ulcer). See Patient Safety Indicators Appendices: • Appendix A – Operating Room Procedure Codes • Appendix D – Surgical Discharge DRGs • Appendix E – Surgical Discharge MS-DRGs	Adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see Appendix A http://www.research.chop.edu/programs/cor/outcomes.php)who developed an in hospital complication and those who died without a complication.	Adult patients admitted for one of the procedures in the General Surgery, Orthopedic or Vascular DRGs (see Appendix A http://www.research.chop.edu/programs/cor/outcomes.php) who developed an in hospital complication and those who died without a complication.

	Maintenance Measure 0351: Death among surgical inpatients with serious, treatable complications (PSI 4)	**Maintenance Measure 0352**: Failure to rescue in-hospital mortality (risk adjusted)	**Maintenance Measure 0353:** Failure to rescue 30-day mortality (risk adjusted)
	PSI appendices at: http://www.qualityindicators.ahrq.gov/downloads/psi/TechSpecs42/PSI%20Appendices.pdf		
Exclusions	Exclude cases: • age 90 years and older • transferred to an acute care facility (DISP = 2) • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) NOTE: Additional exclusion criteria is specific to each diagnosis (pneumonia, DVT/PE, sepsis, shock/cardiac arrest, or GI hemorrhage/acute ulcer).	Patients over age 90, under age 18.	Patients over age 90, under age 18.
Exclusion Details	Exclude cases: • age 90 years and older • transferred to an acute care facility (DISP = 2) • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) NOTE: Additional exclusion criteria is specific to each diagnosis (pneumonia, DVT/PE, sepsis, shock/cardiac arrest, or GI hemorrhage/acute ulcer).		
Risk Adjustment	Risk adjustment method widely or commercially available. The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age in years (in 5-year age groups), modified	Risk Adjustment: Model was developed using logistic regression analysis. Associated data elements: age in years, sex, race, comorbidities, DRGs (combined with and without complications) and procedure codes within DRGs, transfer status. Failure to rescue is	Risk Adjustment: Model was developed using logistic regression analysis. Associated data elements: age in years, sex, race, comorbidities, DRGs (combined with and without complications) and procedure codes within DRGs, transfer status. Failure to rescue is

	Maintenance Measure 0351: Death among surgical inpatients with serious, treatable complications (PSI 4)	**Maintenance Measure 0352**: Failure to rescue in-hospital mortality (risk adjusted)	**Maintenance Measure 0353:** Failure to rescue 30-day mortality (risk adjusted)
	CMS DRG and AHRQ Comorbidities. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2007 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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, state, and region). The risk adjusted rate is computed using indirect standardization as the observed rate divided by the expected rate, multiplied by the reference population rate.	adjusted using a logistic regression model where y is a failure and the total N is composed of patients who develop a complication and patients who died without a complication. According to developer: The model adjustment variables can vary. We have found that FTR results are fairly stable, even with little adjustment, since all patients in an FTR analysis have developed a complication (by definition), they are a more homogeneous group of patients than the entire population. Hence severity adjustment plays somewhat less of a role than in other outcome measures.	adjusted using a logistic regression model where y is a failure and the total N is composed of patients who develop a complication and patients who died without a complication. According to developer: The model adjustment variables can vary. We have found that FTR results are fairly stable, even with little adjustment, since all patients in an FTR analysis have developed a complication (by definition), they are a more homogeneous group of patients than the entire population. Hence severity adjustment plays somewhat less of a role than in other outcome measures.
Stratification	User has an option to stratify by Gender, age (5-year age groups), race / ethnicity, primary payer, and custom stratifiers.	Complicated patient has at least one of the complications defined in Appendix B (http://www.research.chop.edu/programs/cor/outcomes.php) Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission. When Physician Part B file is available, the definition of complications and comorbidities are augmented to include CPT codes.	Complicated patient has at least one of the complications defined in Appendix B (http://www.research.chop.edu/programs/cor/outcomes.php) Complications are defined using the secondary ICD9 diagnosis and procedure codes and the DRG code of the current admission. When Physician Part B file is available, the definition of complications and comorbidities are augmented to include CPT codes.
Type Score	Rate/proportion	Rate/proportion	Rate/proportion
Algorithm	Each indicator is expressed as a rate, is defined as outcome of interest / population at risk or numerator / denominator. 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,	Refer to website (http://www.research.chop.edu/programs/cor/outcomes.php)	Refer to website (http://www.research.chop.edu/programs/cor/outcomes.php)

	Maintenance Measure 0351: Death among surgical inpatients with serious, treatable complications (PSI 4)	**Maintenance Measure 0352**: Failure to rescue in-hospital mortality (risk adjusted)	**Maintenance Measure 0353:** Failure to rescue 30-day mortality (risk adjusted)
	the population at risk is also derived from hospital discharge 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. 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/PSI_download.htm		
Data Source	Electronic administrative data/claims	Electronic administrative data/claims	Electronic administrative data/claims
Level of Measurement /Analysis	Facility/agency	Facility/agency; Health plan; Integrate delivery system; Population: National, regional/network, states, counties or cities	Facility/agency; Health plan; Integrate delivery system; Population: National, regional/network, states, counties or cities
Care Settings	Hospital	Hospital	Hospital

Internal Mammary Artery

	Maintenance Measure 0134: Use of internal mammary artery (IMA) in coronary artery bypass graft (CABG)	**Endorsed Measure 0516**: Use of IMA in isolated CABG (surgeon level)
Status	Currently undergoing review	Endorsed 5/2007
Steward	Society of Thoracic Surgeons	Society of Thoracic Surgeons
Description	Percentage of patients aged 18 years and older undergoing isolated coronary artery bypass graft (CABG) who received an internal mammary artery (IMA) graft.	Percentage of patients aged 18 years and older undergoing isolated CABG surgery who received an Internal Mammary Artery (IMA) graft
Type of Measure	Process	Process
Numerator	Number of patients undergoing isolated coronary artery bypass graft (CABG) who received an internal mammary artery (IMA) graft. Time window:	Number of patients who receive IMA graft in isolated CABG Time window:
Numerator Details	Number of isolated CABG procedures in which IMA Artery Used [IMAArtUs (STS Adult Cardiac Surgery Database Version 2.73)] is marked "Left IMA," "Right IMA," or "Both IMAs"	Number of isolated CABG procedures in which "internal mammary arteries used as graft" [IMAArtUs (1560)- STS Adult Cardiac Surgery Database, Version 2.61, sequence number 1560] is marked as 'Left IMA', 'Right IMA', or 'Both IMAs' Please see STS Adult Cardiac Surgery Database Data Collection Form, Version 2.61: http://www.sts.org/documents/pdf/AdultCV2.61DCF_Annotated.pdf
Denominator	All patients undergoing isolated CABG. Time window: 12 months	All patients undergoing isolated CABG Time window: 12 months
Denominator Categories	Female, Male; 18 and older	Female, Male; ≥18 years on date of encounter
Denominator Details	Number of isolated CABG procedures Isolated CABG is determined as a procedure for which all of the following apply: - OpCAB is marked "Yes" - (VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes") - OCarASDTy is marked "PFO" or "missing" - OCarAFibAProc is marked "primarily epicardial" or "missing" and - OpValve, VSAV, VSAVPr, ResectSubA, VSMV, VSMVPr, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"	Number of isolated CABG procedures excluding repeat CABG. Isolated CABG is determined as a procedure for which OpCab (seq no 1280) is marked 'Yes' and OpValve (1290), VAD (1300), OpAortic (1630), OpMitral (1640), OpTricus (1650), OpPulm (1660), OpONCard (1320), OCarLVA (2360), OCarVSD (2370), OCarASD (2380), OCarBati (2390), OCarSVR (2400), OCarCong (2410), OCarLasr (2420), OCarTrma (2430), OCarCrTx (2440), OCarAfib (2470), ONCAoAn (2510), and OCarOthr (2560) are all marked 'No' or 'Missing'. Please see STS Adult Cardiac Surgery Database Data Collection Form, Version 2.61: http://www.sts.org/documents/pdf/AdultCV2.61DCF_Annotated.pdf
Exclusions	Cases are removed from the denominator	Cases are removed from the denominator if

	Maintenance Measure 0134: Use of internal mammary artery (IMA) in coronary artery bypass graft (CABG)	**Endorsed Measure 0516**: Use of IMA in isolated CABG (surgeon level)
	if the patient had a previous CABG prior to the current admission or if IMA was not used and one of the following reasons was provided: - The IMA is not a suitable conduit due to size or flow - Subclavian stenosis - Previous cardiac or thoracic surgery - Previous mediastinal radiation - Emergent or salvage procedure - No LAD disease	there was a prior CABG performed.
Exclusion Details	Cases are removed from the denominator if the patient had a previous CABG prior to the current admission or if IMA was not used and one of the following reasons was provided: - The IMA is not a suitable conduit due to size or flow - Subclavian stenosis - Previous cardiac or thoracic surgery - Previous mediastinal radiation - Emergent or salvage procedure - No LAD disease	Repeat CABG is identified where PrCAB (600) is marked 'Yes' Please see STS Adult Cardiac Surgery Database Data Collection Form, Version 2.61: http://www.sts.org/documents/pdf/AdultCV2.61DCF_Annotated.pdf
Risk Adjustment	No risk adjustment necessary.	No risk adjustment necessary.
Stratification	N/A	N/A
Type Score	Rate/proportion	Rate/proportion
Algorithm	N/A	N/A
Data Source	Registry data	Electronic health/medical record, electronic clinical data, registry data, paper medical record/flow-sheet
Level of Measurement /Analysis	Clinicians: Group; Facility/agency; Population: National, regional/network, states, counties or cities	Clinician: Individual; Program: Other; All levels
Care Settings	Hospital	Hospital

Pancreatic Resection

	Maintenance Measure 0365: Pancreatic resection mortality rate (IQI 9)	**Maintenance Measure 0366**: Pancreatic resection volume (IQI 2)	**Endorsed Measure 0738:** Survival predictor for pancreatic resection surgery
Status	Currently undergoing review	Currently undergoing review	Endorsed 9/2010
Steward	Agency for Healthcare Research and Quality	Agency for Healthcare Research and Quality	Leapfrog Group
Description	Percentage of adult hospital discharges with procedure code of pancreatic resection with an in-hospital death, stratified by benign and malignant disease.	Number of adult hospital discharges with procedure for pancreatic resection, stratified by benign and malignant disease.	A reliability adjusted measure of pancreatic resection surgical performance that optimally combines two important domains: Pancreatic resection hospital volume and pancreatic operative mortality, to provide predictions on hospital pancreatic survival rates in patients age 18 and over.
Type of Measure	Outcome	Structure	Outcome
Numerator	In hospital deaths meeting the inclusion and exclusion rules for the denominator. Time window: Time window can be determined by user, but is generally a calendar year. Note the volume-outcome relationship is based on volume over a one year time period.	Hospital discharges, age 18 years and older, with ICD-9-CM codes for pancreatic resection procedure, stratified by benign and malignant disease. Time window: Time window can be determined by user, but is generally a calendar year. Note the volume-outcome relationship is based on volume over a one year time period.	Survival of pancreatic cancer patients age 18 and over who undergo a pancreatic resection. Time window: During the hospital admission
Numerator Details	In-hospital deaths (DISP=20)	Discharges, age 18 years and older, with ICD-9-CM codes for pancreatic resection procedure. ICD-9-CM pancreatic resection procedure codes: 526 TOTAL PANCREATECTOMY 527 RADICAL PANCREATICODUODENECT 52.51 Proximal pancreatectomy 52.52 Distal pancreatectomy 52.53 Radical subtotal pancreatectomy 52.59 Other partial pancreatectomy Exclude cases: - MDC 14 (pregnancy, childbirth,	For the observed mortality, the hospital submits the observed deaths for pancreatic resection cases in patients with pancreatic cancer as identified using the population codes.

	Maintenance Measure 0365: Pancreatic resection mortality rate (IQI 9)	**Maintenance Measure 0366**: Pancreatic resection volume (IQI 2)	**Endorsed Measure 0738:** Survival predictor for pancreatic resection surgery
		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) ICD-9-CM codes: 577.0 Acute pancreatitis	
Denominator	Hospital discharges, age 18 years and older, with an ICD-9-CM pancreatic resection procedure code in any field, stratified by benign and malignant disease. Time window: Time window can be determined by user, but is generally a calendar year. Note the volume-outcome relationship is based on volume over a one year time period.	N/A	All hospital patients age 18 and over with pancreatic cancer who had a pancreatic resection. Time Window : 12 months
Denominator Categories	Female, Male; 18 and older	Female, Male; 18 and older	
Denominator Details	Discharges, age 18 years and older, with ICD-9-CM pancreatic resection code procedure and a diagnosis code for pancreatic cancer in any field. ICD-9-CM pancreatic resection procedure codes: 526 TOTAL PANCREATECTOMY 527 RADICAL PANCREATICODUODENECT 52.51 Proximal pancreatectomy 52.52 Distal pancreatectomy 52.53 Radical subtotal pancreatectomy 52.59	N/A	For the volume predicted mortality, hospitals count the number of all pancreatic resection cases using the following codes. ICD-9-CM Procedure Codes for Pancreatectomy Any pancreaticoduodenectomy: 5251 Proximal Pancreatectomy 5253 Radical Subtot Pancreatectomy 526 Total Pancreatectomy 527 Radical Pancreatectomy For the observed mortality, the hospital counts the number of pancreatic resection cases that also have a pancreatic cancer diagnosis using the following codes ICD-9-CM Codes for pancreatic cancer

	Maintenance Measure 0365: Pancreatic resection mortality rate (IQI 9)	**Maintenance Measure 0366**: Pancreatic resection volume (IQI 2)	**Endorsed Measure 0738:** Survival predictor for pancreatic resection surgery
	Other partial pancreatectomy		1521 MALIGNANT NEOPL JEJUNUM 1522 MALIGNANT NEOPLASM ILEUM 1523 MAL NEO MECKEL'S DIVERT 1528 MAL NEO SMALL BOWEL NEC 1529 MAL NEO SMALL BOWEL NOS 1560 MALIG NEO GALLBLADDER 1561 MAL NEO EXTRAHEPAT DUCTS 1562 MAL NEO AMPULLA OF VATER 1568 MALIG NEO BILIARY NEC 1569 MALIG NEO BILIARY NOS 1570 MAL NEO PANCREAS HEAD 1571 MAL NEO PANCREAS BODY 1572 MAL NEO PANCREAS TAIL 1573 MAL NEO PANCREATIC DUCT 1574 MAL NEO ISLET LANGERHANS 1578 MALIG NEO PANCREAS NEC 1579 MALIG NEO PANCREAS NOS
Exclusions	Exclude cases: • missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium) ICD-9-CM codes: 577.0 Acute pancreatitis	N/A	Patients who do not have a diagnosis of pancreatic cancer
Exclusion Details	Exclude cases: • missing discharge	N/A	Pancreatectomy cases without a pancreatic cancer diagnosis

	Maintenance Measure 0365: Pancreatic resection mortality rate (IQI 9)	**Maintenance Measure 0366**: Pancreatic resection volume (IQI 2)	**Endorsed Measure 0738:** Survival predictor for pancreatic resection surgery
	disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1 =missing) • transferring to another short-term hospital (DISP=2) • MDC 14 (pregnancy, childbirth, and puerperium) ICD-9-CM codes: 577.0 Acute pancreatitis		code.
Risk Adjustment	Risk adjustment method widely or commercially available. The predicted value for each case is computed using a hierarchical model (logistic regression with hospital random effect) and covariates for gender, age in years (in 5-year age groups), All Patient Refined-Diagnosis Related Group (APR-DRG) and APR-DRG risk-of-mortality subclass. The reference population used in the model is the universe of discharges for states that participate in the HCUP State Inpatient Databases (SID) for the year 2008 (updated annually), a database consisting of 43 states and approximately 30 million adult discharges. 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. Specific covariates included in the model for this indicator: Intercept Sex Female	No risk adjustment necessary.	We used an empirical Bayes approach to combine mortality rates with information on hospital volume at each hospital. In traditional empirical Bayes methods, a point estimate (e.g., mortality rate observed at a hospital) is adjusted for reliability by shrinking it towards the overall mean (e.g., overall mortality rate in the population). We modified this traditional approach by shrinking the observed mortality rate back toward the mortality rate expected given the volume at that hospital—we refer to this as the "volume-predicted mortality". With this approach, the observed mortality rate is weighted according to how reliably it is estimated, with the remaining weight placed on the information regarding hospital volume [volume-predicted mortality]. Risk adjustment for patient characteristics is not used because in sensitivity analysis, composite measures based on an unadjusted mortality input and a risk-adjusted mortality input had a correlation of (.95) and thus were equally good at predicting future performance. The formula for calculating the

	Maintenance Measure 0365: Pancreatic resection mortality rate (IQI 9)	**Maintenance Measure 0366**: Pancreatic resection volume (IQI 2)	**Endorsed Measure 0738:** Survival predictor for pancreatic resection surgery
	Age 65 to 74 Age 75+ APR-DRG '2603' to '2604' APR-DRG '2201' to '2202' APR-DRG '2203' to '2204' MDC 7 MDC Other WHIPPLE Whipple Procedure Note: APR-DRG 260 is Major Pancreas, Liver & Shunt Procedures; APR-DRG 220 is Major Stomach, Esophageal & Duodenal Procedures. MDC 7 is Diseases & Disorders of the Hepatobiliary System & Pancreas.		survival predictor has two components, one is a volume predicted mortality rate, and the second is an observed mortality rate. The volume predicted mortality rate reflects the hospitals experience performing pancreatic resection surgeries (thus, it includes all pancreatic resection surgeries) and uses mortality for all hospitals at that specific volume to create the volume predicted mortality. The input data from the hospitals for this domain is a volume count of all pancreatic resections performed in the hospital. The second domain is the observed mortality, for this domain the population is narrowed to a homogenous group of pancreatic resections with a diagnosis of cancer, the data needed for this domain is the number of observed deaths occurring for pancreatic resection cases with cancer, within the inpatient setting. The general composite measure calculation is as follows: Predicted Survival = 1-Predicted Mortality Predicted Mortality = (weight)*(mortality) + (1-weight)*(volume predicted mortality) Volume predicted mortality* = intercept - coefficient*ln(caseload), where the intercepts and coefficients are derived from regression using the NIS data and the caseload comes from the Leapfrog Hospital Survey (answer to question #1 for each

	Maintenance Measure 0365: Pancreatic resection mortality rate (IQI 9)	**Maintenance Measure 0366**: Pancreatic resection volume (IQI 2)	**Endorsed Measure 0738:** Survival predictor for pancreatic resection surgery
			high-risk procedure). *Any negative values are reset to "0" Weight = mortality signal/(mortality signal + [mortality sigma/caseload]), where mortality signal and sigma are derived from the NIS data and the caseload comes from the Leapfrog Hospital Survey (answer to question #1 for each high-risk procedure). Method: We used an empirical Bayes approach to combine mortality rates with information on hospital volume at each hospital. In traditional empirical Bayes methods, a point estimate (e.g., mortality rate observed at a hospital) is adjusted for reliability by shrinking it towards the overall mean (e.g., overall mortality rate in the population). We modified this traditional approach by shrinking the observed mortality rate back toward the mortality rate expected given the volume at that hospital—we refer to this as the "volume-predicted mortality". With this approach, the observed mortality rate is weighted according to how reliably it is estimated, with the remaining weight placed on the information regarding hospital volume [volume-predicted mortality]. Risk adjustment for patient characteristics is not used because in sensitivity analysis, composite measures based on an unadjusted mortality input and a risk-adjusted mortality input had a correlation of (.95) and thus were equally good at predicting future performance.

	Maintenance Measure 0365: Pancreatic resection mortality rate (IQI 9)	**Maintenance Measure 0366**: Pancreatic resection volume (IQI 2)	**Endorsed Measure 0738:** Survival predictor for pancreatic resection surgery
			The formula for calculating the survival predictor has two components, one is a volume predicted mortality rate, and the second is an observed mortality rate. The volume predicted mortality rate reflects the hospitals experience performing pancreatic resection surgeries (thus, it includes all pancreatic resection surgeries) and uses mortality for all hospitals at that specific volume to create the volume predicted mortality. The input data from the hospitals for this domain is a volume count of all pancreatic resections performed in the hospital. The second domain is the observed mortality, for this domain the population is narrowed to a homogenous group of pancreatic resections with a diagnosis of cancer, the data needed for this domain is the number of observed deaths occurring for pancreatic resection cases with cancer, within the inpatient setting. The general composite measure calculation is as follows: Predicted Survival = 1-Predicted Mortality Predicted Mortality = (weight)*(mortality) + (1-weight)*(volume predicted mortality) Volume predicted mortality* = intercept - coefficient*ln(caseload), where the intercepts and coefficients are derived from regression using the NIS data and the caseload comes from the

	Maintenance Measure 0365: Pancreatic resection mortality rate (IQI 9)	**Maintenance Measure 0366**: Pancreatic resection volume (IQI 2)	**Endorsed Measure 0738:** Survival predictor for pancreatic resection surgery
			Leapfrog Hospital Survey (answer to question #1 for each high-risk procedure). *Any negative values are reset to "0" Weight = mortality signal/(mortality signal + [mortality sigma/caseload]), where mortality signal and sigma are derived from the NIS data and the caseload comes from the Leapfrog Hospital Survey (answer to question #1 for each high-risk procedure).
Stratification	Malignant Disease: ICD-9-CM pancreatic cancer diagnosis codes: 1520 MALIGNANT NEOPL DUODENUM 1561 MAL NEO EXTRAHEPAT DUCTS 1562 MAL NEO AMPULLA OF VATER 1570 MAL NEO PANCREAS HEAD 1571 MAL NEO PANCREAS BODY 1572 MAL NEO PANCREAS TAIL 1573 MAL NEO PANCREATIC DUCT 1574 MAL NEO ISLET LANGERHANS 1578 MALIG NEO PANCREAS NEC 1579 MALIG NEO PANCREAS NOS Benign Disease: All other cases	Malignant Disease: ICD-9-CM pancreatic cancer diagnosis codes: 1520 MALIGNANT NEOPL DUODENUM 1561 MAL NEO EXTRAHEPAT DUCTS 1562 MAL NEO AMPULLA OF VATER 1570 MAL NEO PANCREAS HEAD 1571 MAL NEO PANCREAS BODY 1572 MAL NEO PANCREAS TAIL 1573 MAL NEO PANCREATIC DUCT 1574 MAL NEO ISLET LANGERHANS 1578 MALIG NEO PANCREAS NEC 1579 MALIG NEO PANCREAS NOS Benign Disease: All other cases	
Type Score	Rate/proportion	Count	
Algorithm	Each indicator is expressed as	The volume is the count of the	

	Maintenance Measure 0365: Pancreatic resection mortality rate (IQI 9)	**Maintenance Measure 0366**: Pancreatic resection volume (IQI 2)	**Endorsed Measure 0738:** Survival predictor for pancreatic resection surgery
	a rate, is defined as outcome of interest / population at risk or numerator / denominator. 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 records. 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 level. 5) Calculate risk-adjusted rate. Use the indirect standardization to account for case-mix. 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.	number of discharges with a procedure for pancreatic resection per hospital.	
Data Source	Administrative claims	Administrative claims	Electronic administrative data/claims
Level of Measurement /Analysis	Facility/agency	Facility/agency	Facility/agency
Care Settings	Hospital/Acute Care Facility	Hospital/Acute Care Facility	Hospital

Prophylactic Antibiotics: Discontinued

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
Status	Endorsed 7/2008	Currently undergoing review	Currently undergoing review	Endorsed 7/2008
Steward	American Medical Association - Physician Consortium for Performance Improvement	Society of Thoracic Surgeons	Centers for Medicare & Medicaid Services	American Medical Association-Physician Consortium for Performance Improvement
Description	Percentage of cardiac surgical patients aged 18 years and older undergoing procedures with the indications for prophylactic antibiotics AND who received a prophylactic antibiotic, who have an order for discontinuation of prophylactic antibiotics within 48 hours of surgical end time.	Percent of patients aged 18 years and older undergoing cardiac surgery whose prophylactic antibiotics were discontinued within 48 hours after surgery end time.	Surgical patients whose prophylactic antibiotics were discontinued within 24 hours after Anesthesia End Time. The Society of Thoracic Surgeons (STS) Practice Guideline for Antibiotic Prophylaxis in Cardiac Surgery (2006) indicates that there is no reason to extend antibiotics beyond 48 hours for cardiac surgery and very explicitly states that antibiotics should not be extended beyond 48 hours even with tubes and drains in place for cardiac surgery.	Percentage of non-cardiac surgical patients aged 18 years and older undergoing procedures with the indications for prophylactic antibiotics AND who received a prophylactic antibiotic, who have an order for discontinuation of prophylactic antibiotics within 24 hours of surgical end time.
Type of Measure	Process	Process	Process	Process
Numerator	Cardiac surgical patients who have an order for discontinuation of prophylactic antibiotics within 48 hours of surgical end time.	Number of patients undergoing cardiac surgery whose prophylactic antibiotics were discontinued within 48 hours after surgery end time.	Number of surgical patients whose prophylactic antibiotics were discontinued within 24 hours after Anesthesia End Time (48 hours for CABG or Other Cardiac Surgery).	Non-cardiac surgical patients who have an order for discontinuation of prophylactic antibiotics within 24 hours of surgical end time. Numerator Instructions: There must be documentation of order (written order, verbal order, or standing order/protocol) specifying that prophylactic antibiotic is to be discontinued within 24 hours of surgical end time OR specifying a

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
		Time window: Within 48 hours after surgery end time.		course of antibiotic administration limited to that 24-hour period (e.g., "to be given every 8 hours for three doses") OR documentation that prophylactic antibiotic was discontinued within 24 hours of surgical end time.
Numerator Details	CPT II 4043F: Documentation that an order was given to discontinue prophylactic antibiotics within 48 hours of surgical end time, cardiac procedure. *Note: CPT Category II Code 4043F may be provided for documentation that antibiotic discontinuation was ordered OR that antibiotic discontinuation was accomplished. Report CPT Category II Code 4043F if antibiotics were discontinued within 48 hours.	Number of cardiac surgery procedures in which appropriate antibiotic discontinuation [AbxDisc (STS Adult Cardiac Surgery Database Version 2.73)] is marked "yes"	Data Elements: Anesthesia End Date Anesthesia End Time Antibiotic Administration Date Antibiotic Administration Time	CPT II 4049F: Documentation that order was given to discontinue prophylactic antibiotics within 24 hours of surgical end time, non-cardiac procedure. Note: CPT Category II Code 4049F is provided for documentation that antibiotic discontinuation was ordered OR that antibiotic discontinuation was accomplished. Report CPT Category II Code 4049F if antibiotics were discontinued within 24 hours
Denominator	All cardiac surgical patients aged 18 years and older undergoing procedures with the indications for prophylactic antibiotics AND who received a prophylactic antibiotic.	Number of patients undergoing cardiac surgery.	Number of surgical patients with: CABG (ICD-9-CM procedure codes 36.10-36.14, 36.19, 36.15-36.17, 36.2), other cardiac surgery (35.0-35.95, 35.98, 35.99), colon surgery (45.00, 45.03, 45.41, 45.49, 45.50, 45.7-45.90, 45.92-45.95, 46.03, 46.04, 46.1-46.14, 46.52, 46.75, 45.76, 46.91, 46.92, 46.94,	All non-cardiac surgical patients undergoing procedures with the indications for prophylactic antibiotics and who received a prophylactic antibiotic.

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			48.5, 48.6-48.69), hip arthroplasty (81.51, 81.52), knee arthroplasty (81.54), abdominal hysterectomy (68.3, 68.4, 68.6), vaginal hysterectomy (68.5-68.59, 68.7), or vascular surgery (38.34, 38.36, 38.37, 38.44, 38.48, 38.49, 38.51, 38.52. 38.64, 38.14, 38.16, 38.18, 39.25, 39.26, 39.29).	
Denominator Categories		Female, Male; 18 yrs and older	Female, Male; Patients aged 18 and older	
Denominator Details	CPT II 4046F:Documentation that prophylactic antibiotics were given within 4 hours prior to surgical incision or given intraoperatively; CPT II 4042F:Documentation that prophylactic antibiotics were neither given within 4 hours prior to surgical incision nor given intraoperatively AND CPT Procedure Codes: Cardiothoracic Surgery: 33120, 33130, 33140, 33141, 33202, 33250, 33251, 33256, 33261, 33305, 33315, 33321, 33322, 33332, 33335, 33400, 33401, 33403-33406, 33410, 33411, 33413, 33416, 33422, 33425-33427, 33430, 33460, 33463-33465, 33475,	Number of cardiac surgery procedures; A cardiac procedure is determined as a procedure for which at least one of the following is not marked "no" or "missing" (note: full terms for STS field names are provided in brackets []): OpCAB[Coronary Artery Bypass], OpValve[Valve Surgery], VADProc [VAD Implanted or Removed], VSAV [Aortic Valve Procedure], VSMV [Mitral Valve Procedure], OpTricus [Tricuspid Valve Procedure Performed], OpPulm[Pulmonic Valve Procedure Performed], OpOCard [Other Cardiac Procedure other than CABG or Valve], OCarLVA [Left Ventricular Aneurysm Repair], OCarVSD [Ventricular Septal Defect Repair], OCarSVR [Surgical Ventricular Restoration], OCarCong [Congenital Defect	Data Elements: Admission Date Anesthesia Start Date Antibiotic Administration Route Antibiotic Name Antibiotic Received Birthdate Clinical Trial Discharge Date ICD-9-CM Principal Diagnosis Code ICD-9-CM Principal Procedure Code Infection Prior to Anesthesia Laparoscope Oral Antibiotics Other Surgeries Perioperative Death Reasons to Extend Antibiotics Surgical Incision Date Surgical Incision Time	CPT II 4046F: Documentation that prophylactic antibiotics were given within 4 hours prior to surgical incision or given intraoperatively; CPT II 4042F: Documentation that prophylactic antibiotics were neither given within 4 hours prior to surgical incision nor given intraoperatively AND • CPT Procedure Codes: Integumentary: 15734, 15738, 19260, 19271, 19272, 19301-19307, 19361, 19364, 19366-19369 Spine: 22325, 22612, 22630, 22800, 22802, 22804, 63030, 63042 Hip Reconstruction: 27125, 27130, 27132, 27134, 27137, 27138 Trauma (Fractures): 27235, 27236, 27244, 27245, 27758, 27759, 27766, 27792, 27814 Knee Reconstruction: 27440-27443, 27445-27447 Vascular: 33877, 33880, 33881,

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
	33496, 33510-33519, 33521-33523, 33530, 33533- 33536, 33542, 33545, 33548, 33572, 35021, 35211, 35216, 35241, 35246, 35271, 35276, 35311.	Repair], OCarTrma [surgical procedure for an injury due to Cardiac Trauma], OCarCrTx [Cardiac Transplant], OCarACD [Arrhythmia Correction Surgery], OCAoProcType[Aortic Procedure Type], EndoProc [Endovascular Procedure (TEVAR)], OCTumor [resection of an intracardiac tumor], OCPulThromDis [Pulmonary Thromboembolectomy,, OCarOthr [Other Cardiac Procedure other than those listed previously], ECMO [Extracorporeal Membrane Oxygenation], OCarLasr [-Transmyocardial Laser Revascularization], OCarASD [Atrial Septal Defect Repair], OCarAFibSur [Atrial Fibrillation Surgical Procedure]		33883, 33886, 33891, 34800, 34802-34805, 34825, 34830-34832, 34900, 35081, 35091, 35102, 35131, 35141, 35151, 35601, 35606, 35612, 35616, 35621, 35623, 35626, 35631, 35636-35638, 35642, 35645-35647, 35650, 35651, 35654, 35656, 35661, 35663, 35665, 35666, 35671, 36830 Spleen and Lymph Nodes: 38115 Esophagus: 43045, 43100, 43101, 43107, 43108, 43112, 43113, 43116-43118, 43121-43124, 43130, 43135, 43300, 43305, 43310, 43312, 43313, 43320, 43324-43326, 43330, 43331, 43340, 43341, 43350, 43351, 43352, 43360, 43361, 43400, 43401, 43405, 43410, 43415, 43420, 43425, 43496 Stomach: 43500-43502, 43510, 43520, 43600, 43605, 43610, 43611, 43620-43622, 43631-43634, 43640, 43641, 43653, 43800, 43810, 43820, 43825, 43830-43832, 43840, 43842, 43843, 43845-43848, 43850, 43855, 43860, 43865, 43870 Small Intestine: 44005, 44010, 44020, 44021, 44050, 44055, 44100, 44120, 44125-44127, 44130, 44132, 44133, 44135, 44136 Biliary Surgery: 47420, 47425, 47460, 47480, 47560, 47561, 47570, 47600, 47605, 47610, 47612, 47620, 47700, 47701, 47711, 47712, 47715, 47719-47721, 47740, 47741, 47760, 47765, 47780, 47785, 47800, 47802, 47900 Pancreas: 48020, 48100, 48120,

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
				48140, 48145, 48146, 48148, 48150, 48152-48155, 48160, 48500, 48510, 48511, 48520, 48540, 48545, 48547, 48548, 48550, 48554, 48556 Abdomen, Peritoneum, and Omentum: 49215, 49568 Renal Transplant: 50300, 50320, 50340, 50360, 50365, 50370, 50380 Neurological Surgery: 22524, 22554, 22558, 22600, 22612, 22630, 35301, 61154, 61312, 61313, 61315, 61510, 61512, 61518, 61548, 61697, 61700, 61750, 61751, 61867, 62223, 62230, 63015, 63020, 63030, 63042, 63045, 63047, 63056, 63075, 63081, 63267, 63276 Cardiothoracic Surgery: 33120, 33130, 33140, 33141, 33202, 33250, 33251, 33256, 33261, 33305, 33315, 33321, 33322, 33332, 33335, 33400, 33401, 33403-33406, 33410, 33411, 33413, 33416, 33422, 33425-33427, 33430, 33460, 33463-33465, 33475, 33496, 33510-33519, 33521-33523, 33530, 33533-33536, 33542, 33545, 33548, 33572, 35211, 35241, 35271 General Thoracic Surgery: 19272, 21627, 21632, 21740, 21750, 21805, 21825, 31760, 31766, 31770, 31775, 31786, 31805, 32095, 32100, 32110, 32120, 32124, 32140, 32141, 32150, 32215, 32220, 32225, 32310, 32320, 32402, 32440, 32442, 32445, 32480, 32482, 32484, 32486, 32488, 32491, 32500, 32501, 32800, 32810, 32815, 32900, 32905, 32906, 32940, 33020,

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
				33025, 33030, 33031, 33050, 33300, 33310, 33320, 34051, 35021, 35216, 35246, 35276, 35311, 35481, 35526, 37616, 38381, 38746, 38747, 39000, 39010, 39200, 39220, 39545, 39561, 60521, 60522, 64746 Foot & Ankle: 27702, 27703, 27704, 27870, 28192, 28193, 28293, 28296, 28299, 28300, 28306, 28307, 28308, 28309, 28310, 28320, 28322, 28415, 28420, 28445, 28465, 28485, 28505, 28525, 28531, 28555, 28585, 28615, 28645, 28675, 28705, 28715, 28725, 28730, 28735, 28737, 28740, 28750, 28755, 28760
Exclusions	Exclude patients for whom prophylactic antibiotics was not ordered by reason of appropriate denominator exclusion. If using electronic data, exclude patients using the following code: If using the medical record or hybrid methodologies, exclude patients who have documentation in the medical record of: medical reason(s) for not discontinuing prophylactic antibiotics within 48 hours of surgical end time, cardiac procedure. If using the EHR methodology, exclude patients using the codes listed in the electronic data collection methodology or who have documentation in the medical record of the appropriate denominator exclusion.	Exclusions: - Patients who had a principal diagnosis suggestive of preoperative infectious diseases - Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope - Patients enrolled in clinical trials - Patients with documented infection prior to surgical procedure of interest - Patients who expired perioperatively - Patients who were receiving antibiotics more than 24 hours prior to surgery - Patients who were receiving antibiotics within 24 hours prior to arrival - Patients who did not receive any	Excluded Populations: Patients less than 18 years of age Patients who have a length of Stay greater than 120 days Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in Appendix A, Table 5.09 for ICD-9-CM codes) Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope Patients enrolled in clinical trials Patients whose ICD-9-CM principal procedure occurred prior to the date of admission Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA)	Documentation of medical reason(s) for not discontinuing prophylactic antibiotics within 24 hours of surgical end time.

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
		antibiotics during this hospitalization - Patients with reasons to extend antibiotics This list will be provided in the STS Adult Cardiac Surgery Database Data Manager's Training Manual as acceptable exclusions.	documented infection prior to surgical procedure of interest Patients who expired perioperatively Patients who had other procedures requiring general or spinal anesthesia that occurred within three days (four days for CABG or Other Cardiac Surgery) prior to or after the procedure of interest (during separate surgical episodes) during this hospital stay Patients who were receiving antibiotics more than 24 hours prior to surgery (except colon surgery patients taking oral prophylactic antibiotics) Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics) Patients who did not receive any antibiotics during this hospitalization. Patients who received urinary antiseptics only (as defined in Appendix C, Table 3.11) Patients with Reasons to Extend Antibiotics.	
Exclusion Details	Append a modifier (1P) to the CPT Category II Code to report patients with documented circumstances that meet the	AbxDisc is marked "Exclusion"	Clinical Trial Infection Prior to Anesthesia Laparoscope Other Surgeries Perioperative Death	Append modifier to CPT Category II code: 4046F-1P

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
	denominator exclusion criteria 1P:Documentation of medical reason(s) for not discontinuing prophylactic antibiotics within 48 hours of surgical end time, cardiac procedure.		Reasons to Extend Antibiotics	
Risk Adjustment	No risk adjustment necessary	No risk adjustment necessary	No risk adjustment necessary	No risk adjustment necessary
Stratification			The antibiotic prophylaxis measures are stratified according to surgery type. The tables are subsets of Table 5.10 (see link for Specification Manual and Appendix A, Tables 5.01 to 5.08. The specific procedures must be in the large table (Table 5.10) to be eligible for the SCIP measures. The measure specific tables for SCIP-Inf-3 are 5.01 to 5.08.	
Type Score		Rate/proportion	Rate/proportion	
Algorithm			1. Start processing. Run cases that are included in the Surgical Care Improvement Project (SCIP) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Calculate Patient Age. The Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			accurate age. 3. Check Patient Age a. If Patient Age is less than 18 years, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for Centers for Medicare and Medicaid Services (CMS). Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If Patient Age is greater than or equal to 18 years, continue processing and proceed to ICD-9-CM Principal Procedure Code. 4. Check ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is not on Table 5.01 or 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.01 or 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and proceed to	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			recheck ICD-9-CM Principal Diagnosis Code. 5. Check ICD-9-CM Principal Diagnosis Code a. If the ICD-9-CM Principal Diagnosis Code is on Table 5.09, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the ICD-9-CM Principal Diagnosis Code is not on Table 5.09, continue processing and proceed to Laparoscope. 6. Check Laparoscope a. If Laparoscope is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If Laparoscope equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission.	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			c. If Laparoscope equals 2, continue processing and proceed to Clinical Trial. 7. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c. If Clinical Trial equals No, continue processing and proceed to Anesthesia Start Date. 8. Check Anesthesia Start Date a. If the Anesthesia Start Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Anesthesia Start Date equals Unable To Determine, the case will proceed to a Measure	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c. If Anesthesia Start Date equals a Non Unable To Determine Value, continue processing and proceed to the Surgery Days calculation. 9. Calculate Surgery Days. Surgery Days, in days, is equal to the Anesthesia Start Date minus the Admission Date. 10. Check Surgery Days a. If the Surgery Days is less than zero, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Surgery Days is greater than or equal to zero, continue processing and proceed to Infection Prior to Anesthesia. 11. Check Infection Prior to Anesthesia a. If Infection Prior to Anesthesia is missing, the case will proceed to a Measure Category Assignment of X and will be	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If Infection Prior to Anesthesia equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c. If Infection Prior to Anesthesia equals No, continue processing and proceed to Perioperative Death. 12. Check Perioperative Death a. If Perioperative Death is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If Perioperative Death equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission.	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			c. If Perioperative Death equals No, continue processing and proceed to Surgical Incision Date. 13. Check Surgical Incision Date a. If the Surgical Incision Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Surgical Incision Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c. If Surgical Incision Date equals a Non Unable To Determine Value, continue processing and proceed to Other Surgeries. 14. Check Other Surgeries a. If Other Surgeries is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If Other Surgeries equals Yes,	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c . If Other Surgeries equals No, continue processing and proceed to Antibiotic Received. 15. Check Antibiotic Received a. If Antibiotic Received equals 1 or 2, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code b. If Antibiotic Received equals 4, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c. If Antibiotic Received equals 3, continue processing and proceed to step 19 and check Antibiotic Name. Do not check step 16 ICD-9-CM Principal Procedure Code, step 17 Oral Antibiotics or step 18 Antibiotic Received. 16. Recheck ICD-9-CM Principal Procedure Code only if Antibiotic Received equals 1 or 2 a. If the ICD-9-CM Principal	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and proceed to check Oral Antibiotics. 17. Check Oral Antibiotics a. If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c. If Oral Antibiotics equals Yes, continue processing and proceed to recheck Antibiotic Received. 18.Recheck Antibiotic Received a. If Antibiotic Received equals 1,	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If Antibiotic Received equals 2, continue processing and proceed to Antibiotic Name. 19. Check Antibiotic Name a. If the Antibiotic Grid is not populated, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. Note: The front-end edits reject cases containing invalid data and/or an incomplete Antibiotic Grid. A complete Antibiotic Grid requires all data elements in the row to contain either a valid value and/or Unable to Determine. b. If the Antibiotic Name is on Table 2.1, continue processing and recheck Antibiotic Name. 20. Recheck Antibiotic Name a. If all of the Antibiotic Names are on Table 3.11, the case will proceed to a Measure Category Assignment of B and will not be	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If at least one of the Antibiotic Names is NOT on Table 3.11, continue processing and proceed to Antibiotic Administration Route. Exclude antibiotic doses on Table 3.11 from further processing. 21. Check Antibiotic Administration Route a. If the Antibiotic Administration Route is equal to 3 or 10 for all antibiotic doses, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Antibiotic Administration Route is equal to 1 or 2 for any antibiotic dose, continue processing and proceed to Antibiotic Administration Date. Proceed only with antibiotic doses on Table 2.1 that are administered via routes 1 or 2. 22. Check Antibiotic Administration Date a. If the Antibiotic Administration Date is equal to Unable to	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Antibiotic Administration Date is equal to a Non Unable to Determine date for at least one antibiotic dose, continue processing and proceed to the Antibiotic Days I calculation. Note: Proceed only with antibiotic doses that have an associated Non Unable to Determine date. 23. Calculate Antibiotic Days I. Antibiotic Days I, in days, is equal to the Surgical Incision Date minus the Antibiotic Administration Date. 24. Check Antibiotic Days I a. If the Antibiotic Days I is greater than 1 for at least one antibiotic dose, continue processing and recheck the ICD-9-CM Principal Procedure Code. Do not recheck step 27 Antibiotic Days I, step 28 Surgical Incision Time, steps 29 and 30 Antibiotic Administration Time, or step 31 Antibiotic Timing I. b. If the Antibiotic Days I is less	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			than or equal to 1 for all antibiotic doses, continue processing. Proceed to step 27 and recheck Antibiotics Days I. Do not recheck ICD-9-CM Principal Procedure Code or Oral Antibiotics. 25. Recheck ICD-9-CM Principal Procedure Code only if Antibiotic Days I is greater than 1 for at least one antibiotic dose a. If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and check Oral Antibiotics. 26.Check Oral Antibiotics a. If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c. If Oral Antibiotics equals Yes, continue processing and proceed to step 35 and check Anesthesia End Date. Do not recheck step 27 Antibiotic Days I, step 28 Surgical Incision Time, steps 29 and 30 Antibiotic Administration Time, or 31 Antibiotic Timing I. 27. Recheck Antibiotic Days I only if Antibiotic Days I was less than or equal to 1 for all antibiotic doses a. If the Antibiotic Days I is less than or equal to zero for ALL antibiotic doses, continue processing. Proceed to step 35 and check Anesthesia End Date. Do not check step 28 Surgical Incision Time, step 29 and 30 Antibiotic Administration Time, or step 31 Antibiotic Timing I. b. If the Antibiotic Days I is equal to 1 for ANY antibiotic dose, continue processing and proceed to Surgical Incision Time. 28.Check Surgical Incision Time a. If the Surgical Incision Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Surgical Incision Time is equal to Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c. If the Surgical Incision Time is equal to a Non Unable to Determine Value, continue processing and check Antibiotic Administration Time. 29.Check Antibiotic Administration Time a. If the Antibiotic Administration Time equals Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Antibiotic Administration Time equals a Non Unable to Determine time for at least one antibiotic dose,	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			continue processing and recheck Antibiotic Administration Time. 30.Recheck Antibiotic Administration Time a. If the Antibiotic Administration Time equals Unable to Determine for ANY antibiotic dose with Antibiotic Days I equal to 1, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Antibiotic Administration Time equals a Non Unable to Determine time for ALL antibiotic doses with Antibiotic Days I equal to 1, continue processing and proceed to the Antibiotic Timing I calculation. 31.Calculate Antibiotic Timing I. Antibiotic Timing I, in minutes, is equal to the Surgical Incision Date and Surgical Incision Time minus the Antibiotic Administration Date and Antibiotic Administration Time. Calculate Antibiotic Timing I for all antibiotic doses with non Unable to Determine date and time. Proceed with antibiotic doses that have Antibiotic Timing	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			I calculated, or Antibiotic Days I less than or equal to zero. 32.Check Antibiotic Timing I a. If the Antibiotic Timing I is greater than 1440 minutes for any antibiotic dose, continue processing and recheck the ICD-9-CM Principal Procedure Code. Proceed with antibiotic does that have Antibiotic Timing I calculated, or Antibiotic Days I less than or equal to zero. b. If the Antibiotic Timing I is less than or equal to 1440 minutes for all antibiotic doses with non Unable to Determine date and time, continue processing. Proceed to step 35 and check Anesthesia End Date. Do not recheck ICD-9-CM Principal Procedure Code or Oral Antibiotics. 33. Recheck ICD-9-CM Principal Procedure Code only if the Antibiotic Timing I is greater than 1440 minutes for any antibiotic dose a. If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and check Oral Antibiotics. 34.Check Oral Antibiotics a. If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c. If Oral Antibiotics equals Yes, continue processing and proceed to Anesthesia End Date. 35. Check Anesthesia End Date a. If the Anesthesia End Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Anesthesia End Date is	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			equal to Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c. If the Anesthesia End Date is equal to a Non Unable to Determine value, continue processing and proceed to the Antibiotic Days II calculation. 36. Calculate Antibiotic Days II. Antibiotic Days II, in days, is equal to the Antibiotic Administration Date minus the Anesthesia End Date. 37. Set Exclusion Flag, for all cases, to equal No. If all of the antibiotic doses of a case satisfy one of the two following conditions, set Exclusion Flag (for this case) to equal ?Yes'. These conditions are: a. Antibiotic Days II is greater than 3 days regardless of table on which procedure code is on; OR b. Antibiotic Days II is greater than 2 days AND ICD-9-CM Principal Procedure Code is on Table 5.03, 5.04, 5.05, 5.06, 5.07, or 5.08. 38. Check Exclusion Flag a. If the Exclusion Flag is equal to	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Exclusion Flag is equal to No, continue processing and proceed to check Antibiotic Days II. Remove any dose that satisfies one of the two following conditions. These conditions are: 1. Antibiotic Days II is greater than 3 days regardless of procedure on which procedure code is on; OR 2. Antibiotic Days II is greater than 2 days AND ICD-9-CM Principal Procedure Code is on Table 5.03, 5.04, 5.05, 5.06, 5.07 or 5.08. 39.Check Antibiotic Days II a. If the Antibiotic Days II is less than or equal to zero for all antibiotic doses, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Antibiotic Days II is greater than zero for at least one	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			antibiotic dose, continue processing and recheck ICD-9-CM Principal Procedure Code. 40.Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.01 or 5.02, continue processing and recheck Antibiotic Days II. 1.If the Antibiotic Days II is less than 2 days for antibiotic doses, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. 2.If the Antibiotic Days II is greater than or equal to 2 days for at least one antibiotic dose, continue processing and proceed to Anesthesia End Time. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and proceed to Anesthesia End Time. 41. Check Anesthesia End Time a. If the Anesthesia End Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 47 and check the	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Anesthesia End Time is equal to Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c. If the Anesthesia End Time is equal to a Non Unable to Determine Value, continue processing and recheck Antibiotic Administration Time. 42. Recheck Antibiotic Administration Time a. If the Antibiotic Administration Time equals Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the Antibiotic Administration Time equals a Non Unable to Determine time for at least one antibiotic dose, continue processing and proceed	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			to the Antibiotic Timing II calculation. Remove from consideration any antibiotic doses for which Antibiotic Administration Time equals Unable to Determine. 43. Calculate Antibiotic Timing II. Antibiotic Timing II, in minutes, is equal to the Antibiotic Administration Date and Antibiotic Administration Time minus Anesthesia End Date and Anesthesia End Time. 44. Set Exclusion Flag. Set Exclusion Flag, for all cases, to equal ?No'. If all of the antibiotic doses of a case satisfy one of the two following conditions, set Exclusion Flag (for this case) to equal ?Yes'. These conditions are: a. Antibiotic Timing is greater than 4320 minutes; OR b. Antibiotic Timing II is greater than 2880 minutes AND ICD-9-CM Principal Procedure Code is on Table 5.03, 5.04, 5.05, 5.06, 5.07, or 5.08. 45. Check Exclusion Flag a. If the Exclusion Flag equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 47 and check the Stratified Measures for Overall Rate (SCIP-Inf-3a) for The	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			Joint Commission. b. If the Exclusion Flag equals No, continue processing and recheck ICD-9-CM Principal Procedure Code and Antibiotic Timing II. Remove any dose that satisfies one of the two following conditions. These conditions are: 1. Antibiotic Timing II is greater than 4320 minutes; OR Principal Procedure Code is on Table 5.03, 5.04, 5.05, 5.06, 5.07, or 5.08. 46.Recheck ICD-9-CM Principal Procedure Code and Antibiotic Timing II a. If the ICD-9-CM Principal Procedure Code is on Table 5.01 or 5.02 and Antibiotic Timing II is less than or equal to 2880 minutes for all antibiotic doses, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.01 or 5.02 and Antibiotic Timing II is greater than 2880 minutes for at least one antibiotic dose, continue processing and proceed to check Reasons To Extend Antibiotics. 1. If Reasons To Extend	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. 2. If Reasons To Extend Antibiotics equals 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. 3. If Any Reasons To Extend Antibiotics equals 1, 2, 3, 4, 5, 6 and None equals 7, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. c. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08 and Antibiotic Timing II is less than or equal to 1440 minutes for all antibiotic doses, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. d. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08 and Antibiotic Timing II is greater than 1440 minutes for at least one antibiotic dose, continue processing and proceed to check Reasons To Extend Antibiotics. 1. If Reasons To Extend Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. 2. If Reasons To Extend Antibiotics equals 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-3a) for The Joint Commission. 3. If Any Reasons To Extend Antibiotics equals 1, 2, 3, 4, 5, 6 and None equals 7, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to Stratified Measures for Overall	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			Rate (SCIP-Inf-3a) for The Joint Commission. 47. For The Joint Commission Only, continue processing for the Stratified Measures. Note: Initialize the Measure Category Assignment for each strata measure (b-g) to equal B, not in the Measure Population. Do not change the Measure Category Assignment that was already calculated for the overall rate (SCIP-Inf-3a). The rest of the algorithm will reset the appropriate Measure Category Assignment to be equal to the overall rate´s (SCIP-Inf-3a) Measure Category Assignment. 48. Check Overall Rate Category Assignment a. If the Overall Rate Category Assignment is equal to B or X, set the Measure Category Assignment for the strata measures (SCIP-Inf-3b through SCIP-Inf-3h) to equal B, not in the Measure Population. Stop processing. b. If the Overall Rate Category Assignment is equal to D or E, continue processing and check the ICD-9-CM Principal Procedure Code. 49. Check ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			Procedure Code is on Table 5.01, for Stratified Measure SCIP-Inf-3b, set the Measure Category Assignment for measure SCIP-Inf-3b to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 50. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.02, for Stratified Measure SCIP-Inf-3c, set the Measure Category Assignment for measure SCIP-Inf-3c to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 51. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.04, for Stratified Measure SCIP-Inf-	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			3d, set the Measure Category Assignment for measure SCIP-Inf-3d to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 52. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.05, for Stratified Measure SCIP-Inf-3e, set the Measure Category Assignment for measure SCIP-Inf-3e to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 53. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.03, for Stratified Measure SCIP-Inf-3f, set the Measure Category Assignment for measure SCIP-Inf-3f to equal the Measure	

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
			Category Assignment for measure SCIP-Inf-3a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 54. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07, for Stratified Measure SCIP-Inf-3g, set the Measure Category Assignment for measure SCIP-Inf-3g to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.08, for Stratified Measure SCIP-Inf-3h, set the Measure Category Assignment for measure SCIP-Inf-3h to equal the Measure Category Assignment for measure SCIP-Inf-3a. Stop processing.	
Data Source	Electronic health/medical record, paper medical record/flow-sheet	Registry data	Electronic administrative data/claims, paper medical record/flow-sheet	Electronic administrative data/claims, lab data, paper medical record/flow-sheet
Level of Measurement /Analysis	Clinicians: Individual, group	Clinicians: Group; Facility/agency; Population: National, regional/network, states, counties or cities	Facility/agency	Clinicians: Individual, group
Care Settings	Hospital, Ambulatory care:	Hospital	Hospital	Hospital, Ambulatory care:

	Endorsed Measure 0637: Discontinuation of prophylactic antibiotics (cardiac procedures)	**Maintenance Measure 0128**: Duration of antibiotic prophylaxis for cardiac surgery patients	**Maintenance Measure 0529**: Prophylactic antibiotics discontinued within 24 hours after surgery end time	**Endorsed Measure 0271**: Discontinuation of prophylactic antibiotics (non-cardiac procedures)
	Ambulatory surgery center			Ambulatory surgery center

Prophylactic Antibiotics: Selection

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
Status	Currently undergoing review	Endorsed 7/2008	Currently undergoing review
Steward	Society of Thoracic Surgeons	American Medical Association-Physician Consortium for Performance Improvement	Centers for Medicare & Medicaid Services
Description	Percent of patients aged 18 years and older undergoing cardiac surgery who received preoperative prophylactic antibiotics recommended for the operation.	Percentage of surgical patients aged 18 years and older undergoing procedures with the indications for a first OR second generation cephalosporin prophylactic antibiotic, who had an order for cefazolin OR cefuroxime for antimicrobial prophylaxis.	Surgical patients who received prophylactic antibiotics consistent with current guidelines (specific to each type of surgical procedure).
Type of Measure	Process	Process	Process
Numerator	Number of patients undergoing cardiac surgery patients who received a first generation or second generation cephalosporin prophylactic antibiotic (e.g., cefazolin, cefuroxime, cefamandole) preoperatively or in the event of a documented allergy, an alternate antibiotic choice (e.g., vancomycin, clindamycin) was ordered and administered preoperatively.	Surgical patients who had an order for cefazolin OR cefuroxime for antimicrobial prophylaxis. Numerator Instructions: There must be documentation of order (written order, verbal order, or standing order/protocol) for cefazolin or cefuroxime for antimicrobial prophylaxis OR documentation that cefazolin or cefuroxime was given. Report one of the following CPT Category II codes: •CPT II 4041F: Documentation of order for cefazolin OR cefuroxime for antimicrobial prophylaxis. Note: CPT Category II Code 4041F is provided for antibiotic ordered or antibiotic given. Report CPT Category II Code 4041F if cefazolin OR cefuroxime was given for antimicrobial prophylaxis.	Surgical patients who received recommended prophylactic antibiotics for specific surgical procedures.
Numerator Details	Number of cardiac surgery procedures in which appropriate antibiotic selection [AbxSelect (STS Adult Cardiac Surgery Database Version 2.73)] is marked "yes"		Data Elements: Antibiotic Administration Route Antibiotic Allergy Antibiotic Name Oral Antibiotics Vancomycin

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
Denominator	Number of patients undergoing cardiac surgery. Time window: 12 months	All surgical patients aged 18 years and older undergoing procedures with the indications for a first or second generation cephalosporin prophylactic antibiotic.	All selected surgical patients with no evidence of prior infection. Included Populations: An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.10 for ICD-9-CM codes). AND An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.01-5.08 for ICD-9-CM codes).
Denominator Categories	Female, Male; 18 and older		Female, Male; Patients aged 18 or older
Denominator Details	Number of cardiac surgery procedures; A cardiac procedure is determined as a procedure for which at least one of the following is not marked "no" or "missing" (note: full terms for STS field names are provided in brackets []): OpCAB[Coronary Artery Bypass], OpValve[Valve Surgery], VADProc [VAD Implanted or Removed], VSAV [Aortic Valve Procedure], VSMV [Mitral Valve Procedure], OpTricus [Tricuspid Valve Procedure Performed], OpPulm[Pulmonic Valve Procedure Performed], OpOCard [Other Cardiac Procedure other than CABG or Valve], 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], OCarACD [Arrhythmia Correction	Report one of the following CPT Category II codes: • CPT II 4041F: Documentation of order for cefazolin OR cefuroxime for antimicrobial prophylaxis. Note: CPT Category II Code 4041F is provided for antibiotic ordered or antibiotic given. Report CPT Category II Code 4041F if cefazolin OR cefuroxime was given for antimicrobial prophylaxis. Denominator (Eligible Population): All surgical patients aged 18 years and older undergoing procedures with the indications for a first or second generation cephalosporin prophylactic antibiotic • CPT Procedure Codes: Integumentary: 15734, 15738, 19260, 19271, 19272, 19301-19307, 19361, 19364, 19366-19369 Spine: 22325, 22612, 22630, 22800, 22802, 22804, 63030, 63042 Hip Reconstruction: 27125, 27130, 27132, 27134, 27137, 27138 Trauma (Fractures): 27235, 27236, 27244, 27245, 27758, 27759, 27766, 27792, 27814	Data Elements: Anesthesia End Date Anesthesia End Time Anesthesia Start Date Admission Date Antibiotic Administration Date Antibiotic Administration Time Antibiotic Received Birthdate Clinical Trial Discharge Date ICD-9-CM Principal Diagnosis Code ICD-9-CM Principal Procedure Code Infection Prior to Anesthesia Laparoscope Perioperative Death Surgical Incision Date Surgical Incision Time

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
	Surgery], OCAoProcType[Aortic Procedure Type], EndoProc [Endovascular Procedure (TEVAR)], OCTumor [resection of an intracardiac tumor], OCPulThromDis [Pulmonary Thromboembolectomy,, OCarOthr [Other Cardiac Procedure other than those listed previously], ECMO [Extracorporeal Membrane Oxygenation], OCarLasr [-Transmyocardial Laser Revascularization], OCarASD [Atrial Septal Defect Repair], OCarAFibSur [Atrial Fibrillation Surgical Procedure]	Knee Reconstruction: 27440-27443, 27445-27447 Vascular: 33877, 33880, 33881, 33883, 33886, 33891, 34800, 34802-34805, 34825, 34830-34832, 34900, 35081, 35091, 35102, 35131, 35141, 35151, 35601, 35606, 35612, 35616, 35621, 35623, 35626, 35631, 35636-35638, 35642, 35645-35647, 35650, 35651, 35654, 35656, 35661, 35663, 35665, 35666, 35671, 36830 Spleen and Lymph Nodes: 38115 Esophagus: 43045, 43100, 43101, 43107, 43108, 43112, 43113, 43116-43118, 43121-43124, 43130, 43135, 43300, 43305, 43310, 43312, 43313, 43320, 43324-43326, 43330, 43331, 43340, 43341, 43350, 43351, 43352, 43360, 43361, 43400, 43401, 43405, 43410, 43415, 43420, 43425, 43496 Stomach: 43500-43502, 43510, 43520, 43600, 43605, 43610, 43611, 43620-43622, 43631-43634, 43640, 43641, 43653, 43800, 43810, 43820, 43825, 43830-43832, 43840, 43842, 43843, 43845-43848, 43850, 43855, 43860, 43865, 43870 Small Intestine: 44005, 44010, 44020, 44021, 44050, 44055, 44100, 44120, 44125-44127, 44130, 44132, 44133, 44135, 44136 Biliary Surgery: 47420, 47425, 47460, 47480, 47560, 47561, 47570, 47600, 47605, 47610, 47612, 47620, 47700, 47701, 47711, 47712, 47715, 47719-47721, 47740, 47741, 47760, 47765, 47780, 47785, 47800, 47802, 47900 Pancreas: 48020, 48100, 48120, 48140, 48145, 48146, 48148, 48150, 48152-48155, 48160, 48500, 48510, 48511, 48520, 48540, 48545, 48547, 48548, 48550, 48554, 48556 Abdomen, Peritoneum, and Omentum: 49215, 49568 Renal Transplant: 50300, 50320, 50340, 50360, 50365, 50370, 50380 Neurological Surgery: 22524, 22554, 22558, 22600, 22612, 22630, 35301, 61154, 61312, 61313, 61315,	

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
		61510, 61512, 61518, 61548, 61697, 61700, 61750, 61751, 61867, 62223, 62230, 63015, 63020, 63030, 63042, 63045, 63047, 63056, 63075, 63081, 63267, 63276 Cardiothoracic Surgery: 33120, 33130, 33140, 33141, 33202, 33250, 33251, 33256, 33261, 33305, 33315, 33321, 33322, 33332, 33335, 33400, 33401, 33403-33406, 33410, 33411, 33413, 33416, 33422, 33425-33427, 33430, 33460, 33463-33465, 33475, 33496, 33510-33519, 33521-33523, 33530, 33533-33536, 33542, 33545, 33548, 33572, 35211, 35241, 35271 General Thoracic Surgery: 19272, 21627, 21632, 21740, 21750, 21805, 21825, 31760, 31766, 31770, 31775, 31786, 31805, 32095, 32100, 32110, 32120, 32124, 32140, 32141, 32150, 32215, 32220, 32225, 32310, 32320, 32402, 32440, 32442, 32445, 32480, 32482, 32484, 32486, 32488, 32491, 32500, 32501, 32800, 32810, 32815, 32900, 32905, 32906, 32940, 33020, 33025, 33030, 33031, 33050, 33300, 33310, 33320, 34051, 35021, 35216, 35246, 35276, 35311, 35481, 35526, 37616, 38381, 38746, 38747, 39000, 39010, 39200, 39220, 39545, 39561, 60521, 60522, 64746 Foot & Ankle: 27702, 27703, 27704, 27870, 28192, 28193, 28293, 28296, 28299, 28300, 28306, 28307, 28308, 28309, 28310, 28320, 28322, 28415, 28420, 28445, 28465, 28485, 28505, 28525, 28531, 28555, 28585, 28615, 28645, 28675, 28705, 28715, 28725, 28730, 28735, 28737, 28740, 28750, 28755, 28760	
Exclusions	Exclusions include: - Patients who had a principal diagnosis suggestive of preoperative infectious diseases - Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope - Patients enrolled in clinical	Documentation of medical reason(s) for not ordering cefazolin OR cefuroxime for antimicrobial prophylaxis.	Excluded Populations: Patients less than 18 years of age Patients who have a length of Stay greater than 120 days Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in Appendix A, Table 5.09 for ICD-9-CM codes) Patients whose ICD-9-CM

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
	trials - Patients with documented infection prior to surgical procedure of interest - Patients who expired perioperatively - Patients who were receiving antibiotics more than 24 hours prior to surgery - Patients who were receiving antibiotics within 24 hours prior to arrival - Patients who did not receive any antibiotics before or during surgery, or within 24 hours after anesthesia end time (i.e., patient did not receive prophylactic antibiotics) - Patients who did not receive any antibiotics during this hospitalization This list will be provided in the STS Adult Cardiac Surgery Database Data Manager's Training Manual as acceptable exclusions. AbxSelect is marked "Exclusion"		principal procedure was performed entirely by Laparoscope Patients enrolled in clinical trials Patients whose ICD-9-CM principal procedure occurred prior to the date of admission Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure of interest Patients who expired perioperatively Patients who were receiving antibiotics more than 24 hours prior to surgery (except colon surgery patients taking oral prophylactic antibiotics) Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics) Patients who did not receive any antibiotics before or during surgery, or within 24 hours after Anesthesia End Time (i.e., patient did not receive prophylactic antibiotics) Patients who did not receive any antibiotics during this hospitalization
Exclusion Details	See above	Append modifier to CPT Category II code: 4041F-1P	Data Elements: Birthdate Clinical Trial ICD-9-CM Principal Diagnosis Code Infection Prior to Anesthesia Laparoscope Perioperative Death
Risk Adjustment	No risk adjustment necessary	No risk adjustment necessary	No risk adjustment necessary
Stratification	N/A		The antibiotic prophylaxis measures are stratified according to surgery type. The tables are subsets of Table 5.10 (see link for Specification Manual and Appendix A, Tables 5.01 to 5.08.

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			The specific procedures must be in the large table (Table 5.10) to be eligible for the SCIP measures. The measure specific tables for SCIP-Inf-2 are 5.01 to 5.08.
Type Score	Rate/proportion		Rate/proportion
Algorithm	N/A		1. Start processing. Run cases that are included in the Surgical Care Improvement Project (SCIP) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Calculate Patient Age. The Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age. 3. Check Patient Age a. If Patient Age is less than 18 years, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for Centers for Medicare and Medicaid Services (CMS). Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Patient Age is greater than or equal to 18 years, continue processing and proceed to ICD-9-CM Principal Procedure Code. 4. Check ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is not on Table 5.01 or 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.01 or 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and proceed to recheck ICD-9-CM Principal Diagnosis Code. 5. Check ICD-9-CM Principal Diagnosis Code a. If the ICD-9-CM Principal Diagnosis Code is on Table 5.09, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the ICD-9-CM Principal Diagnosis Code is not on Table 5.09, continue processing and proceed to Laparoscope. 6.Check Laparoscope a. If Laparoscope is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Laparoscope equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Laparoscope equals 2, continue processing and proceed to Clinical Trial. 7. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Clinical Trial equals No, continue processing and proceed to Anesthesia Start Date. 8. Check Anesthesia Start Date a. If the Anesthesia Start Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Anesthesia Start Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Anesthesia Start Date equals a Non Unable To Determine Value, continue processing and proceed to the Surgery Days calculation. 9.Calculate Surgery Days. Surgery Days, in days, is equal to the Anesthesia Start Date minus the Admission Date. 10.Check Surgery Days a. If the Surgery Days is less than zero, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Surgery Days is greater than or equal to zero, continue processing and proceed to Infection Prior to Anesthesia. 11. Check Infection Prior to Anesthesia a. If Infection Prior to Anesthesia is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Infection Prior to Anesthesia equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Infection Prior to Anesthesia equals No, continue processing and proceed to Perioperative Death. 12. Check Perioperative Death a. If Perioperative Death is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Perioperative Death equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			Joint Commission. c. If Perioperative Death equals No, continue processing and proceed to Surgical Incision Date. 13.Check Surgical Incision Date a. If the Surgical Incision Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Surgical Incision Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Surgical Incision Date equals a Non Unable To Determine Value, continue processing and proceed to Antibiotic Received. 14. Check Antibiotic Received a. If Antibiotic Received equals 1 or 2, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code b. If Antibiotic Received equals 4, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Antibiotic Received equals 3, continue processing and proceed to step 18 and check Antibiotic Name. Do not check ICD-9-CM Principal Procedure Code, Oral Antibiotics or Antibiotic Received. 15.Recheck ICD-9-CM Principal Procedure Code only if Antibiotic

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			Received equals 1 or 2 a. If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and proceed to check Oral Antibiotics. 16.Check Oral Antibiotics a. If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Oral Antibiotics equals Yes, continue processing and proceed to recheck Antibiotic Received. 17.Recheck Antibiotic Received a. If Antibiotic Received equals 1, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Antibiotic Received equals 2, continue processing and proceed to Antibiotic Name. 18.Check Antibiotic Name

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			a. If the Antibiotic Grid is not populated, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. Note: The front-end edits reject cases containing invalid data and/or an incomplete Antibiotic Grid. A complete Antibiotic Grid requires all data elements in the row to contain either a valid value and/or Unable to Determine. b. If the Antibiotic Name is on Table 2.1, continue processing and proceed to Antibiotic Administration Route. 19. Check Antibiotic Administration Route a. If the Antibiotic Administration Route is equal to 3 or 10 for all antibiotic doses, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Administration Route is equal to 1 or 2 for any antibiotic dose, continue processing and proceed to Antibiotic Administration Date. Proceed only with antibiotic doses on Table 2.1 that are administered via routes 1 or 2. 20. Check Antibiotic Administration Date a. If the Antibiotic Administration Date is equal to Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Administration Date is equal to a Non Unable to Determine date for at least one antibiotic dose, continue processing and proceed to the Antibiotic Days I calculation. Note: Proceed only with antibiotic doses that have an associated Non Unable to Determine date. 21. Calculate Antibiotic Days I. Antibiotic Days I, in days, is equal to the Surgical Incision Date minus the Antibiotic Administration Date. 22.Check Antibiotic Days I a. If the Antibiotic Days I is greater than 1 for at least one antibiotic dose, continue processing and recheck the ICD-9-CM Principal Procedure Code. Do not recheck step 25 Antibiotic Days I, step 26 Surgical Incision Time, step 27 Antibiotic Administration Time, or step 29 Antibiotic Timing I. b. If the Antibiotic Days I is less than or equal to 1 for all antibiotic doses, continue processing. Proceed to step 25 and recheck Antibiotics Days I. Do not recheck ICD-9-CM Principal Procedure Code or Oral Antibiotics. 23. Recheck ICD-9-CM Principal Procedure Code only if the Antibiotics Days was greater than 1 for at least one antibiotic dose a. If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission.

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			b. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and check Oral Antibiotics. 24.Check Oral Antibiotics a. If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Oral Antibiotics equals Yes, continue processing. Proceed to step 33 and check Anesthesia End Date. Do not recheck step 25 Antibiotic Days I, step 26 Surgical Incision Time, step 27 Antibiotic Administration Time, or step 29 Antibiotic Timing I. 25.Recheck Antibiotic Days I only if Antibiotic Days I is less than or equal to 1 for all antibiotic doses a. If the Antibiotic Days I is less than or equal to zero for all antibiotic doses, continue processing. Proceed to step 33 and check Anesthesia End Date. Do not check step 26 Surgical Incision Time, step 27 Antibiotic Administration Time, or step 29 Antibiotic Timing I. b. If the Antibiotic Days I is equal to 1 for ANY antibiotic dose, continue processing and proceed to Surgical Incision Time. 26.Check Surgical Incision Time a. If the Surgical Incision Time is missing, the case will proceed to a Measure Category Assignment of

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Surgical Incision Time is equal to Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If the Surgical Incision Time is equal to a Non Unable to Determine Value, continue processing and check Antibiotic Administration Time. 27.Check Antibiotic Administration Time a. If the Antibiotic Administration Time equals Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Administration Time equals a Non Unable to Determine time for at least one antibiotic dose, continue processing and recheck Antibiotic Administration Time. 28.Recheck Antibiotic Administration Time a. If the Antibiotic Administration Time equals Unable to Determine for ANY antibiotic dose with Antibiotic Days equal to 1, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Administration Time equals a Non Unable to Determine time for All antibiotic doses with Antibiotic Days equal to 1, continue processing and proceed to the Antibiotic Timing I calculation. 29. Calculate Antibiotic Timing I. Antibiotic Timing I, in minutes, is equal to the Surgical Incision Date and Surgical Incision Time minus the Antibiotic Administration Date and Antibiotic Administration Time. Calculate Antibiotic Timing I for all antibiotic doses with Non Unable to Determine date and time. Proceed with antibiotic doses that have Antibiotic Timing I calculated, or Antibiotic Days I less than or equal to zero. 30.Check Antibiotic Timing I a. If the Antibiotic Timing I is greater than 1440 minutes for any antibiotic dose, continue processing and recheck the ICD-9-CM Principal Procedure Code. Proceed with antibiotic doses that have Antibiotic Timing I calculated, or Antibiotic Days I less than or equal to zero. b. If the Antibiotic Timing I is less than or equal to 1440 minutes for all antibiotic doses with non Unable to Determine date and time, continue processing and proceed to step 33 and check Anesthesia End Date. Proceed with antibiotic doses that have Antibiotic Timing I calculated, or Antibiotic Days I less than or equal to zero. Do not recheck ICD-9-CM Principal Procedure Code or Oral Antibiotics. 31.Recheck ICD-9-CM Principal Procedure Code only if Antibiotic Timing I is greater than 1440 for

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			any antibiotic dose a. If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and check Oral Antibiotics. 32.Check Oral Antibiotics a. If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Oral Antibiotics equals Yes, continue processing and proceed to Anesthesia End Date. 33.Check Anesthesia End Date a. If the Anesthesia End Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Anesthesia End Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If the Anesthesia End Date equals a Non Unable to Determine Value, continue processing and proceed to the Antibiotic Days II calculation. 34. Calculate Antibiotic Days II. Antibiotic Days II, in days, is equal to the Antibiotic Administration Date minus the Anesthesia End Date. 35. Check Antibiotic Days II a. If the Antibiotic Days II is less than or equal to zero for all doses of all antibiotics, continue processing. Proceed to step 41 and recheck Antibiotic Administration Route. Do not check step 37 Anesthesia End Time, step 38 Antibiotic Administration Time, or step 39 Antibiotic Timing II. b. If the Antibiotic Days II is greater than zero for at least one dose of any antibiotic, continue processing and proceed to Initialize the Abxday flag. 36. Initialize Abxday flag. Initialize Abxday flag to equal ?No´ for each antibiotic dose. Set Abxday flag to equal ´Yes? for each antibiotic dose where Antibiotic Days II is less than or equal to zero. 37. Check Anesthesia End Time a. If the Anesthesia End Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Anesthesia End Time is equal to Unable to Determine, continue processing and proceed

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			to check the Abxday flag. 1. If the Abxday flag equals No for All doses, the case will proceed to a Measure Category Assignment of D of will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2.f the Abxday flag equals Yes for ANY dose, continue processing and proceed to step 41. Proceed only with doses where the Abxflag is equal to Yes. c. If the Anesthesia End Time is equal to a Non Unable to Determine Value, continue processing and recheck Antibiotic Administration Time. 38. Recheck Antibiotic Administration Time a .If the Antibiotic Administration Time equals Unable to Determine for all antibiotic doses, continue processing and proceed to check the Abxday flag. 1. If the Abxday flag equals No for All doses, the case will proceed to a Measure Category Assignment of D of will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and recheck the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2. If the Abxday flag equals Yes for ANY dose, continue processing and proceed to step 41 and recheck the Antibiotic Administration Route. Proceed only with doses where the Abxflag is equal to Yes. Do not check Antibiotic Timing II. b. If the Antibiotic Administration Time equals a Non Unable to Determine time for at least one antibiotic dose, continue processing and proceed to the Antibiotic Timing II calculation.

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			Proceed with both UTD and Non-UTD time. 39. Calculate Antibiotic Timing II. Antibiotic Timing II, in minutes, is equal to the Antibiotic Administration Date and Antibiotic Administration Time minus Anesthesia End Date and Anesthesia End Time. Calculate Antibiotic Timing II for all antibiotic doses with Non Unable to Determine date and time. Proceed with antibiotic doses that have Antibiotic Timing II calculated, or Abxday flag equal to Yes. 40.Check Antibiotic Timing II a. If the Antibiotic Timing II is greater than 1440 minutes for all doses of all Antibiotics with a Non Unable to Determine date and time, continue processing and proceed to check the Abxday Flag. Proceed with antibiotic doses that have Antibiotic Timing II calculated, or Abxday flag equal to Yes. 1. If the Abxday flag equals No for All doses, the case will proceed to a Measure Category Assignment of B of will not be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2.If the Abxday flag equals Yes for ANY dose, continue processing and recheck the Antibiotic Administration Route. Proceed only with doses where the Abxflag is equal to Yes. b. If the Antibiotic Timing II is less than or equal to 1440 minutes for at least one dose of ANY antibiotic, continue processing and proceed to Antibiotic Administration Route. Proceed with antibiotic doses that have Antibiotic Timing II calculated, or

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			Abxday flag equal to Yes. 41.Recheck Antibiotic Administration Route. For each case, proceed ONLY with those antibiotic doses that satisfy at least one of the following conditions: Antibiotic Timing II is less than or equal to 1440 or Abxday flag is equal to Yes. a. If the Antibiotic Administration Route equals 1 for all doses of all Antibiotics, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Administration Route equals 2 for any dose of any antibiotic, continue processing and proceed to recheck the ICD-9-CM Principal Procedure Code. Note: For each case include only those antibiotics with route IV for further processing. 42. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and proceed to step 46 and recheck Antibiotic Name. Do not recheck to determine if ICD-9-CM Principal Procedure Code is on Tables 5.01, 5.02, 5.04, 5.05, 5.06, 5.07, or 5.08 or if Antibiotic Name is on Table 3.2. b. If the ICD-9-CM Principal Procedure Code is on Tables 5.01, 5.02, 5.04, 5.05, 5.06, 5.07, or 5.08, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code. 43. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.06

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			or 5.07, continue processing and proceed to recheck Antibiotic Name. 1. If the Antibiotic Name is on Table 3.7, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2.If the Antibiotic Name is not on Table 3.7, continue processing and proceed to step 46 and recheck Antibiotic Name. Do not recheck to determine if ICD-9-CM Principal Procedure Code is on Tables 5.01, 5.02, 5.04, 5.05, or 5.08 or if Antibiotic Name is on Table 3.2. b. If the ICD-9-CM Principal Procedure Code is on Tables 5.01, 5.02, 5.04, 5.05, or 5.08, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code. 44. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.01, 5.02, or 5.08, continue processing and proceed to recheck Antibiotic Name. 1. If the Antibiotic Name is on Table 3.1, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2. If the Antibiotic Name is not on Table 3.1, continue processing and proceed to step 46 and recheck Antibiotic Name. Do not recheck to determine if ICD-9-CM Principal Procedure Code is on Tables 5.04 or 5.05 or if Antibiotic

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			Name is on Table 3.2. b. If the ICD-9-CM Principal Procedure Code is on Tables 5.04 or 5.05, continue processing and proceed to recheck Antibiotic Name. 45.Recheck Antibiotic Name a. If the Antibiotic Name is on Table 3.2, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Name is not on Table 3.2, continue processing and proceed to recheck Antibiotic Name. 46. Recheck Antibiotic Name a. If the Antibiotic Name is on Table 3.6b, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Name is not on Table 3.6b, continue processing and proceed to recheck Antibiotic Name. 47. Recheck Antibiotic Name a. If the Antibiotic Name is on Table 3.5, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If the Antibiotic Name is not on Table 3.5, continue processing and proceed to recheck Antibiotic Name. 48. Recheck Antibiotic Name a. If the Antibiotic Name is on

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			Table 3.2, continue processing and recheck Antibiotic Name. 1. If the Antibiotic Name is on Table 3.6a, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2.If the Antibiotic name is not on Table 3.6a, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code. b. If the Antibiotic Name is not on Table 3.2, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code. 49. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.01, 5.02, 5.04, 5.05, or 5.08, continue processing and proceed to recheck Antibiotic Name. b. If the ICD-9-CM Principal Procedure Code is on Tables 5.03, 5.06 or 5.07, continue processing and proceed to step 54 and check Antibiotic Allergy, Do not check step 50 and 52 to see if Antibiotic Name is on Tables 3.8 or 3.9, step 51 Antibiotic Allergy or step 53 Vancomycin. 50. Recheck Antibiotic Name only if the ICD-9-CM Principal Procedure Code is on Table 5.01, 5.02, 5.04, 5.05, or 5.08 a. If none of the Antibiotic Names are on Table 3.8 and 3.9, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If at least one of the Antibiotic

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			Names are on Table 3.8 or 3.9, continue processing and proceed to Antibiotic Allergy. 51.Check Antibiotic Allergy only if at least one of the Antibiotic Names are on Table 3.8 or 3.9 a. If Antibiotic Allergy is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Antibiotic Allergy equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Antibiotic Allergy equals No, continue processing and proceed to recheck Antibiotic Name. 52. Recheck Antibiotic Name a. If none of the Antibiotic Names are on Table 3.8, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If at least one of the Antibiotic Names are on Table 3.8, continue processing and proceed to check Vancomycin. 53. Check Vancomycin a. If Vancomycin is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If any Vancomycin value

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			equals 9 and none of the values equal 1, 2, 3, 4, 5, 6, 7, 8, 10, or 11, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If any Vancomycin value equals 1, 2, 3, 4, 5, 6, 7, 8, 10, or 11 and none of the values equals 9, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 54. Check Antibiotic Allergy only if the ICD-9-CM Principal Procedure Code is on Table 5.03, 5.06, or 5.07 a. If Antibiotic Allergy is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If Antibiotic Allergy equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. c. If Antibiotic Allergy equals Yes, continue processing and proceed to recheck Antibiotic Name. 55. Recheck Antibiotic Name a. If at least one of the Antibiotic Names is on Table 3.9, continue processing and recheck Antibiotic Name.

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			1. If at least one of the Antibiotic Names is on Tables 2.11 or 3.12 or 2.7, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 57 and check the Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2. If none of the Antibiotic Names are on Tables 2.11 or 3.12 or 2.7, continue processing and recheck Antibiotic Name. b. If none of the Antibiotic Names are on Table 3.9, continue processing and recheck Antibiotic Name. 56.Recheck Antibiotic Name a. If at least one of the Antibiotic Names is on Table 3.6a, continue processing and recheck Antibiotic Name. 1. If at least one of the Antibiotic Names is on Tables 2.11 or 3.12, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. 2. If none of the Antibiotic Names are on Tables 2.11 or 3.12, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission. b. If none of the Antibiotic Names are on Table 3.6a, the case will proceed to a Measure Category Assignment of D and will be in the measure population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-2a) for The Joint Commission.

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			57. For The Joint Commission Only, continue processing for the Stratified Measures. Note: Initialize the Measure Category Assignment for each strata measure (b-g) to equal B, not in the Measure Population. Do not change the Measure Category Assignment that was already calculated for the overall rate (SCIP-Inf-2a). The rest of the algorithm will reset the appropriate Measure Category Assignment to be equal to the overall rate´s (SCIP-Inf-2a) Measure Category Assignment. 58. Check Overall Rate Category Assignment a. If the Overall Rate Category Assignment is equal to B or X, set the Measure Category Assignment for the strata measures (SCIP-Inf-2b through SCIP-Inf-2h) to equal B, not in the Measure Population. Stop processing. b. If the Overall Rate Category Assignment is equal to D or E, continue processing and check the ICD-9-CM Principal Procedure Code. Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) SCIP-Inf-2-30 59. Check ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.01, for Stratified Measure SCIP-Inf-2b, set the Measure Category Assignment for measure SCIP-Inf-2b to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.02

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the If the ICD-9-CM Principal Procedure Code. 60. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.02, for Stratified Measure SCIP-Inf-2c, set the Measure Category Assignment for measure SCIP-Inf-2c to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the If the ICD-9-CM Principal Procedure Code. 61.Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.04, for Stratified Measure SCIP-Inf-2d, set the Measure Category Assignment for measure SCIP-Inf-2d to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the If the ICD-9-CM Principal Procedure Code. 62.Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.05, for Stratified Measure SCIP-Inf-2e, set the Measure Category Assignment for measure SCIP-Inf-2e to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. b. If the ICD-9-CM Principal

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			Procedure Code is on Table 5.03 or 5.06 or 5.07 or 5.08, continue processing and recheck the If the ICD-9-CM Principal Procedure Code. 63. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.03, for Stratified Measure SCIP-Inf-2f, set the Measure Category Assignment for measure SCIP-Inf-2f to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07 or 5.08, continue processing and recheck the If the ICD-9-CM Principal Procedure Code. 64. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07, for Stratified Measure SCIP-Inf-2g, set the Measure Category Assignment for measure SCIP-Inf-2g to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.08, for Stratified Measure SCIP-Inf-2h, set the Measure Category Assignment for measure SCIP-Inf-2h to equal the Measure Category Assignment for measure SCIP-Inf-2a. Stop processing. 2a.22. Describe the method for discriminating performance *(E.g., significance testing)* Benchmarks are established using the ABC methodology, based on the actual performance of the top facilities. ABC benchmarks identify superior performance

	Maintenance Measure 0126: Selection of antibiotic prophylaxis for cardiac surgery patients	**Endorsed Measure 0268:** Selection of prophylactic antibiotic: First or second generation cephalosporin	**Maintenance Measure 0528**: Prophylactic antibiotic selection for surgical patients
			and encourage poorer performers to improve. It is data-driven, peer-group performance feedback. Achievable Benchmarks of Care TM: developed at the University of Alabama at Birmingham for AHRQ. This methodology identifies benchmark care levels already achieved by "best-in-class" care givers. Development of benchmarks that are realistic and achievable may help to motivate providers that are having difficulty improving care. The benchmarks represent a measureable level of excellence that always exceeds average performance. It ensures that all superior providers contribute to the benchmark but also ensures that providers with high performance but very low numbers of cases do not unduly influence benchmark levels. Additional information can be found at http://main.uab.edu/show.asp?durki=14527
Data Source	Registry data	Electronic administrative data/claims, lab data, paper medical record/flow-sheet	Electronic administrative data/claims, paper medical record/flow-sheet
Level of Measurement /Analysis	Clinicians: Group; Facility/agency; Population: National, regional/network, states, counties or cities	Clinicians: Individual	Facility/agency
Care Settings	Hospital	Hospital, Ambulatory care: Ambulatory surgery center	Hospital

Prophylactic Antibiotics: Timing/Received

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
Status	Currently undergoing review	Endorsed 7/2008	Endorsed 11/2007	Endorsed 10/2008
Steward	Centers for Medicare & Medicaid Services	American Medical Association-Physician Consortium for Performance Improvement	National Committee for Quality Assurance, American Medical Association-Physician Consortium for Performance Improvement	Massachusetts General Hospital/Partners Health Care System
Description	Surgical patients with prophylactic antibiotics initiated within one hour prior to surgical incision. Patients who received vancomycin or a fluoroquinolone for prophylactic antibiotics should have the antibiotics initiated within two hours prior to surgical incision. Due to the longer infusion time required for vancomycin or a fluoroquinolone, it is acceptable to start these antibiotics within two hours prior to incision time.	Percentage of surgical patients aged 18 years and older undergoing procedures with the indications for prophylactic parenteral antibiotics, who have an order for prophylactic antibiotic to be given within one hour (if fluoroquinolone or vancomycin, two hours), prior to the surgical incision (or start of procedure when no incision is required)	Percentage of surgical patients aged > 18 years with indications for prophylactic parenteral antibiotics for whom administration of the antibiotic has been initiated within one hour (if vancomycin, two hours) prior to the surgical incision or start of procedure when no incision is required.	Percentage of patients undergoing cesarean section who receive prophylactic antibiotics within one hour prior to surgical incision or at the time of delivery.
Type of Measure	Process	Process	Process	Process
Numerator	Number of surgical patients who received prophylactic antibiotics within 1 hour of surgical incision (2 hours if receiving vancomycin).	Surgical patients who have an order for prophylactic antibiotic to be given within one hour (if fluoroquinolone or vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required). Numerator Instructions: There must be documentation of order (written order, verbal order, or standing order/protocol)	Surgical patients for whom administration of a prophylactic antibiotic has been initiated within one hour (if vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required). The antimicrobial drugs listed below are considered prophylactic antibiotics for	Number of patients who received prophylactic antibiotics within one hour prior to surgical incision or at the time of delivery. Because delivery and administration of antibiotics are unlikely to be exactly simultaneous and watches imperfectly synchronized, in operational use there must be an allowance for a discrete period of time in the application of "at the time of

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
		specifying that antibiotic is to be given within one hour (if fluoroquinolone or vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required) OR documentation that antibiotic has been given within one hour (if fluoroquinolone or vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required).	the purposes of this measure: •Ampicillin/sulbactam •Aztreonam •Cefazolin •Cefmetazole •Cefotetan •Cefoxitin •Cefuroxime •Ciprofloxacin •Clindamycin •Erythromycin base •Gatifloxacin •Gentamicin •Levofloxacin •Metronidazole •Moxifloxacin •Neomycin •Vancomycin	delivery." We propose that administration should be considered acceptable if given within 10 minutes of delivery/cord clamping for those in whom prophylactic antibiotics are not given preooperatively.
Numerator Details	Data Elements: Anesthesia Start Date Antibiotic Administration Date Antibiotic Administration Time Surgical Incision Date Surgical Incision Time	Report one of the following CPT Category II codes: Identify patients with documentation of order for prophylactic antibiotic: • CPT II 4047F: Documentation of order for prophylactic antibiotic to be given within one hour (if fluoroquinolone or vancomycin, two hours) prior to surgical incision (or start of procedure when no incision is required). OR Documentation that	Electronic Collection: G-codes or CPT Category II are used to report the numerator of the measure: 1. If reporting G-codes submit the appropriate G-code. 2. If reporting CPT Category II codes submit the appropriate CPT Category II code. Identify surgical patients who were administered prophylactic antibiotics (See Table 2A) within one hour (if vancomycin, two hours) prior	

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
		prophylactic antibiotic has been given within one hour prior to the surgical incision (or start of procedure when no incision is required). • CPT II 4048F: Documentation that prophylactic antibiotic was given within one hour (if fluoroquinolone or vancomycin, two hours) prior to surgical incision (or start of procedure when no incision is required).	to the surgical incision (or start of procedure when no incision is required): •? GXXXXX: Clinician documented to have given the prophylactic antibiotic within one hour (if vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required). OR ? CPT II XXXXF: Documentation that prophylactic antibiotic was given within one hour (if vancomycin, two hours) prior to surgical incision (or start of procedure when no incision is required). Medical Records: There must be documentation of order (written order, verbal order, or standing order/protocol) specifying that antibiotic is to be given within one hour (if vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required). A sample should be determined using the most accurate data available in the settings in which the measure will be implemented. Sample sizes	

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
			may be defined by different implementers. Hybrid: Users should follow the requirements of electronic data collection, select a sample of patients, and then supplement the electronic data where needed with medical record abstraction of data elements to fulfill measure reporting requirements. EHR: Electronic Health Record (EHR) users may opt to use this methodology or the electronic data collection methodology described previously. EHR users should collect data on 100% of their denominator population instead of a sample. EHR users may opt to use the codes listed in the electronic data collection methodology to identify patients with documentation of administration of prophylactic antibiotic.	
Denominator	All selected surgical patients with no evidence of prior infection. Table 5.10 is the complete table of selected major	All surgical patients aged 18 years and older undergoing procedures with the indications for prophylactic parenteral	All surgical patients aged 18 years and older who have an order for a prophylactic parenteral antibiotic to be	All patients undergoing cesarean section without evidence of prior infection or already receiving prophylactic antibiotics for other

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	surgeries	antibiotics Denominator (Eligible Population): All surgical patients aged 18 years and older undergoing procedures with the indications for prophylactic parenteral antibiotics.	given within one hour (if vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required).	reasons.
Denominator Categories	Female, Male; Patients aged 18 and older			
Denominator Details	Included Populations: An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.10 for ICD-9-CM codes). AND An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.01-5.08 for ICD-9-CM codes).	• CPT Procedure Codes Integumentary: 15734, 15738, 19260, 19271, 19272, 19301-19307, 19361, 19364, 19366-19369 Le Fort Fractures: 21422, 21423, 21346-21348, 21432, 21433, 21435, 21436 Mandibular Fracture: 21454, 21461, 21462, 21465, 21470 Spine: 22325, 22612, 22630, 22800, 22802, 22804, 63030, 63042 Hip Reconstruction: 27125, 27130, 27132, 27134, 27137, 27138 Trauma (Fractures): 27235, 27236, 27244, 27245, 27758, 27759, 27766, 27792, 27814 Knee Reconstruction: 27440-27443, 27445-27447 Laryngectomy: 31360, 31365, 31367, 31368, 31370, 31375, 31380, 31382, 31390, 31395 Vascular: 33877, 33880, 33881, 33883, 33886, 33891, 34800,	Electronic Collection: G-code, CPT-II code, and patient demographics (age, etc) are used to determine patients that are included in the measure: •? GXXXXX: Patient documented to have order for prophylactic parenteral antibiotic to be given within one hour (if vancomycin, two hours) prior to surgical incision (or start of procedure when no incision is required). OR •? CPT II XXXXF: Documentation of order for prophylactic parenteral antibiotic to be given within one hour (if vancomycin, two hours) prior to surgical incision (or start of procedure when no incision is required). Medical Records: There must	

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
		34802-34805, 34825, 34830-34832, 34900, 35081, 35091, 35102, 35131, 35141, 35151, 35601, 35606, 35612, 35616, 35621, 35623, 35626, 35631, 35636-35638, 35642, 35645-35647, 35650, 35651, 35654, 35656, 35661, 35663, 35665, 35666, 35671, 36830 Spleen and Lymph Nodes: 38115 Glossectomy: 41130, 41135, 41140, 41145, 41150, 41153, 41155 Esophagus: 43045, 43100, 43101, 43107, 43108, 43112, 43113, 43116-43118, 43121-43124, 43130, 43135, 43300, 43305, 43310, 43312, 43313, 43320, 43324-43326, 43330, 43331, 43340, 43341, 43350, 43351, 43352, 43360, 43361, 43400, 43401, 43405, 43410, 43415, 43420, 43425, 43496 Stomach: 43500-43502, 43510, 43520, 43600, 43605, 43610, 43611, 43620-43622, 43631-43634, 43640, 43641, 43653, 43800, 43810, 43820, 43825, 43830-43832, 43840, 43842, 43843, 43845-43848, 43850, 43855, 43860, 43865, 43870 Small Intestine: 44005, 44010, 44020, 44021, 44050, 44055, 44100, 44120, 44125-44127,	be documentation of order (written order, verbal order, or standing order/protocol) specifying that antibiotic is to be given within one hour (if vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required). A sample should be determined using the most accurate data available in the settings in which the measure will be implemented. Sample sizes may be defined by different implementers. Hybrid: Users should follow the requirements of electronic data collection, select a sample of patients, and then supplement the electronic data where needed with medical record abstraction of data elements to fulfill measure reporting requirements. EHR: Electronic Health Record (EHR) users may opt to use this methodology or the electronic data collection methodology described previously. EHR users should collect data on 100% of their	

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
		44130, 44132, 44133, 44135, 44136 Colon and Rectum: 43880, 44025, 44110, 44111, 44140, 44141, 44143-44147, 44150, 44151, 44155-44158, 44160, 44202, 44204-44208, 44210-44212, 44300, 44310, 44312, 44314, 44316, 44320, 44322, 44340, 44345, 44346, 44602-44605, 44615, 44620, 44625, 44626, 44640, 44650, 44660, 44661, 44700, 44950, 51597 Anus and Rectum: 45108, 45110-45114, 45116, 45119-45121, 45123, 45126, 45130, 45135, 45136, 45150, 45160, 45170, 45190, 45500, 45505, 45520, 45540, 45541, 45550, 45560, 45562, 45563, 45800, 45805, 45820, 45825 Hepatic Surgery: 47133, 47135, 47136, 47140-47142 Biliary Surgery: 47420, 47425, 47460, 47480, 47560, 47561, 47570, 47600, 47605, 47610, 47612, 47620, 47700, 47701, 47711, 47712, 47715, 47719-47721, 47740, 47741, 47760, 47765, 47780, 47785, 47800, 47802, 47900 Pancreas: 48020, 48100, 48120, 48140, 48145, 48146, 48148, 48150, 48152-48155, 48160, 48500, 48510, 48511, 48520,	denominator population instead of a sample. EHR users may opt to use the codes listed in the electronic data collection methodology to identify all patients aged 18 years and older who have an order for a parenteral antibiotic to be given within one hour (if vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required).	

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
		48540, 48545, 48547, 48548, 48550, 48554, 48556 Abdomen, Peritoneum, and Omentum: 49215, 49568 Renal Transplant: 50300, 50320, 50340, 50360, 50365, 50370, 50380 Gynecologic Surgery: 58150, 58152, 58180, 58200, 58210, 58260, 58262, 58263, 58267, 58270, 58275, 58280, 58285, 58290-58294 Acoustic Neuroma: 61591, 61595, 61596, 61598, 61520, 61526, 61530, 61606, 61616, 61618, 61619, 69720, 69955, 69960, 69970 Cochlear Implants: 69930 Neurological Surgery: 22524, 22554, 22558, 22600, 22612, 22630, 35301, 61154, 61312, 61313, 61315, 61510, 61512, 61518, 61548, 61697, 61700, 61750, 61751, 61867, 62223, 62230, 63015, 63020, 63030, 63042, 63045, 63047, 63056, 63075, 63081, 63267, 63276 Cardiothoracic Surgery: 33120, 33130, 33140, 33141, 33202, 33250, 33251, 33256, 33261, 33305, 33315, 33321, 33322, 33332, 33335, 33400, 33401, 33403-33406, 33410, 33411, 33413, 33416, 33422, 33425-33427, 33430, 33460, 33463-		

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
		33465, 33475, 33496, 33510-33519, 33521-33523, 33530, 33533-33536, 33542, 33545, 33548, 33572, 35211, 35241, 35271 Cardiothoracic (Pacemaker): 33203, 33206-33208, 33212-33218, 33220, 33222-33226, 33233-33238, 33240, 33241, 33243, 33244, 33249, 33254, 33255 Genitourinary Surgery: 51550, 51555, 51565, 51570, 51575, 51580, 51585, 51590, 51595, 51596, 51920, 51925, 52450, 52601, 52612, 52614, 52620, 52630, 52647, 52648, 54401, 54405, 54406, 54408, 54410, 54415, 54416, 55801, 55810, 55812, 55815, 55821, 55831, 55840, 55842, 55845 General Thoracic Surgery: 19272, 21627, 21632, 21740, 21750, 21805, 21825, 31760, 31766, 31770, 31775, 31786, 31805, 32095, 32100, 32110, 32120, 32124, 32140, 32141, 32150, 32215, 32220, 32225, 32310, 32320, 32402, 32440, 32442, 32445, 32480, 32482, 32484, 32486, 32488, 32491, 32500, 32501, 32800, 32810, 32815, 32900, 32905, 32906, 32940, 33020, 33025, 33030, 33031, 33050, 33300, 33310, 33320, 34051, 35021, 35216,		

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
		35246, 35276, 35311, 35481, 35526, 37616, 38381, 38746, 38747, 39000, 39010, 39200, 39220, 39545, 39561, 60521, 60522, 64746. Foot & Ankle: 27702, 27703, 27704, 27870, 28192, 28193, 28293, 28296, 28299, 28300, 28306, 28307, 28308, 28309, 28310, 28320, 28322, 28415, 28420, 28445, 28465, 28485, 28505, 28525, 28531, 28555, 28585, 28615, 28645, 28675, 28705, 28715, 28725, 28730, 28735, 28737, 28740, 28750, 28755, 28760		
Exclusions	Patients less than 18 years of age Patients who have a Length of Stay greater than 120 days Patients who had a hysterectomy and a caesarean section performed during this hospitalization Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in Appendix A, Table 5.09 for ICD-9-CM codes) Patients whose ICD-9-CM principal procedure was performed entirely by Laparoscope Patients enrolled in clinical trials Patients whose ICD-9-CM	Documentation of medical reason(s) for not ordering antibiotics to be given within one hour (if fluoroquinolone or vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required).	N/A	

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	principal procedure occurred prior to the date of admission Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure of interest Patients who had other procedures requiring general or spinal anesthesia that occurred within 3 days (4 days for CABG or Other Cardiac Surgery) prior to or after the procedure of interest (during separate surgical episodes) during this hospital stay Patients who were receiving antibiotics more than 24 hours prior to surgery Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics)			
Exclusion Details	Data Elements: Admission Date Antibiotic Received Birthdate Clinical Trial Discharge Date Infection Prior to Anesthesia Laparoscope Oral Antibiotics Other Surgeries	Append modifier to CPT Category II code: 4047F-1P		

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
Risk Adjustment	No risk adjustment necessary	No risk adjustment necessary	No risk adjustment necessary	No risk adjustment necessary
Stratification	The antibiotic prophylaxis measures are stratified according to surgery type. The tables are subsets of Table 5.10 (see link for Specification Manual and Appendix A, Tables 5.01 to 5.08. The specific procedures must be in the large table (Table 5.10) to be eligible for the SCIP measures. The measure specific tables for SCIP-Inf-1 are 5.01 to 5.08.			
Type Score	Rate/proportion			
Algorithm	1. Start processing. Run cases that are included in the Surgical Care Improvement Project (SCIP) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2. Calculate Patient Age. The Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age. 3. Check Patient Age a. If the Patient Age is less than 18 years, the case will proceed to a Measure Category Assignment of B and will not be			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	in the Measure Population. Stop processing for Centers for Medicare and Medicaid Services (CMS). Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the Patient Age is greater than or equal to 18 years, continue processing and proceed to ICD-9-CM Principal Procedure Code. 4. Check ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is not on Table 5.01 or 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.01 or 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and proceed to recheck ICD-9-CM Principal Procedure Code. 5. Recheck ICD-9-CM Principal Procedure Code			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	a. If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07, continue processing and check ICD-9-CM Other Procedure Code. 1. If any of the ICD-9-CM Other Procedure Codes are on Table 4.07, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. 2.If all of the ICD-9-CM Other Procedure Codes are missing or none are on Table 4.07, continue processing and proceed to ICD-9-CM Principal Diagnosis Code. b. If the ICD-9-CM Principal Procedure Code is not on Table 5.06 or 5.07, continue processing and proceed to ICD-9-CM Principal Diagnosis Code. 6. Check ICD-9-CM Principal Diagnosis Code a. If the ICD-9-CM Principal Diagnosis Code is on Table 5.09, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the ICD-9-CM Principal Diagnosis Code is not on Table 5.09, continue processing and proceed to Laparoscope. 7.Check Laparoscope a. If Laparoscope is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If Laparoscope equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c. If Laparoscope equals 2, continue processing and proceed to Clinical Trial. 8. Check Clinical Trial a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c. If Clinical Trial equals No, continue processing and proceed to Anesthesia Start Date. 9. Check Anesthesia Start Date a. If the Anesthesia Start Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the Anesthesia Start Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission c. If Anesthesia Start Date equals a Non Unable To Determine Value, continue processing and proceed to the Surgery Days calculation. 10.Calculate Surgery Days. Surgery Days, in days, is equal to the Anesthesia Start Date minus the Admission Date. 11.Check Surgery Days a. If the Surgery Days is less than zero, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the Surgery Days is greater than or equal to zero, continue processing and proceed to Infection Prior to Anesthesia. 12.Check Infection Prior to Anesthesia a. If Infection Prior to Anesthesia is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If Infection Prior to Anesthesia equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c. If Infection Prior to Anesthesia equals No, continue processing and proceed to Other Surgeries. 13. Check Other Surgeries a. If Other Surgeries is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If Other Surgeries equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	(SCIP-Inf-1a) for The Joint Commission. c. If Other Surgeries equals No, continue processing and proceed to Surgical Incision Date. 14. Check Surgical Incision Date a. If the Surgical Incision Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP- Inf-1a) for The Joint Commission. b. If the Surgical Incision Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c. If Surgical Incision Date equals a Non Unable To Determine Value, continue processing and proceed to Antibiotic Received. 15.Check Antibiotic Received a. If Antibiotic Received equals 1 or 2, continue processing and proceed to recheck ICD-9-CM			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	Principal Procedure Code b. If Antibiotic Received equals 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c. If Antibiotic Received equals 3, continue processing and proceed to step 19 and check Antibiotic Name. Do not check ICD-9-CM Principal Procedure Code, Oral Antibiotics or Antibiotic Received. 16.Recheck ICD-9-CM Principal Procedure Code only if Antibiotic Received equals 1 or 2 a. If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	proceed to check Oral Antibiotics. 17.Check Oral Antibiotics a. If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c. If Oral Antibiotics equals Yes, continue processing and proceed to recheck Antibiotic Received. 18.Recheck Antibiotic Received a. If Antibiotic Received equals 1, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a)			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	for The Joint Commission. b. If Antibiotic Received equals 2, continue processing and proceed to Antibiotic Name. 19.Check Antibiotic Name a. If the Antibiotic Grid is not populated, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. Note: The front-end edits reject cases containing invalid data and/or an incomplete Antibiotic Grid. A complete Antibiotic Grid requires all data elements in the row to contain either a valid value and/or Unable to Determine. b. If the Antibiotic Name is on Table 2.1, continue processing and proceed to Antibiotic Administration Route. 20.Check Antibiotic Administration Route a. If the Antibiotic Administration Route is equal to 3 or 10 for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the Antibiotic Administration Route is equal to 1 or 2 for any antibiotic dose, continue processing and proceed to Antibiotic Administration Date. Proceed only with antibiotic doses on Table 2.1 that are administered via routes 1 or 2. 21.Check Antibiotic Administration Date a. If the Antibiotic Administration Date is equal to Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the Antibiotic Administration Date is equal to a Non Unable to Determine date for at least one antibiotic dose, continue processing and precede to the Antibiotic Days I calculation. Note: Proceed only			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	with antibiotic doses that have an associated non Unable to Determine date. 22.Calculate Antibiotic Days I. Antibiotic Days I, in days, is equal to the Surgical Incision Date minus the Antibiotic Administration Date. 23.Check Antibiotic Days I a. If the Antibiotic Days I is greater than 1 for at least one antibiotic dose, continue processing and recheck the ICD-9-CM Principal Procedure Code. b. If the Antibiotic Days I is less than or equal to 1 for all antibiotic doses, continue processing. Proceed to step 26 and recheck Antibiotics Days I. Do not recheck ICD-9-CM Principal Procedure Code or Oral Antibiotics. 24. Recheck ICD-9-CM Principal Procedure Code only if the Antibiotic Days I is greater than 1 for at least one antibiotic dose a. If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	(SCIP-Inf-1a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and check Oral Antibiotics. 25.Check Oral Antibiotics a. If Oral Antibiotics is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c. If Oral Antibiotics equals Yes, continue processing and proceed to step 27 and check Surgical Incision Time. Do not recheck Antibiotic Days I. 26.Recheck Antibiotic Days I a. If the Antibiotic Days I is less than zero for all antibiotic doses, the case will proceed to a			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the Antibiotic Days I is greater than or equal to zero for any antibiotic dose, continue processing and proceed to Surgical Incision Time. 27.Check Surgical Incision Time a. If the Surgical Incision Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the Surgical Incision Time is equal to Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c. If the Surgical Incision Time is equal to a Non Unable to Determine Value, continue			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	processing and check Antibiotic Administration Time. 28.Check Antibiotic Administration Time a. If the Antibiotic Administration Time equals Unable to Determine for all antibiotic doses, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the Antibiotic Administration Time equals a Non Unable to Determine time for at least one antibiotic dose, continue processing and proceed to the Antibiotic Timing I calculation. Note: Proceed only with antibiotic doses that have an associated non Unable to Determine time. 29. Calculate Antibiotic Timing I. Antibiotic Timing I, in minutes, is equal to the Surgical Incision Date and Surgical Incision Time minus the Antibiotic Administration Date and Antibiotic Administration Time. 30. Check Antibiotic Timing I			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	a. If the Antibiotic Timing I is greater than 1440 minutes for any antibiotic dose, continue processing and recheck the ICD-9-CM Principal Procedure Code. b. If the Antibiotic Timing I is less than or equal to 1440 minutes for all antibiotic doses, continue processing. Proceed to step 33 and recheck Antibiotic Timing I. Do not recheck ICD-9-CM Principal Procedure Code or Oral Antibiotics. 31.Recheck ICD-9-CM Principal Procedure Code only if the Antibiotic Timing I is greater than 1440 minutes for any antibiotic dose a. If the ICD-9-CM Principal Procedure Code is not on Table 5.03, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03, continue processing and check Oral Antibiotics. 32. Check Oral Antibiotics a.If Oral Antibiotics is missing,			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If Oral Antibiotics equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) SCIP-Inf-1-18 processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. c. If Oral Antibiotics equals Yes, continue processing and proceed to recheck Antibiotic Timing I. 33.Recheck Antibiotic Timing I a. If the Antibiotic Timing I is greater than or equal to zero minutes and less than or equal to 60 minutes for at least one antibiotic dose, the case will proceed to a Measure Category			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the Antibiotic Timing I is less than zero minutes or greater than 60 minutes for all antibiotic doses, continue processing and recheck Antibiotic Name. 34.Recheck Antibiotic Name a. If the Antibiotic Name is on Table 3.8 or Table 3.10 for at least one dose, continue processing and recheck Antibiotic Timing I. b. If the Antibiotic Name is not on Table 3.8 or Table 3.10 for any dose, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Do not recheck Antibiotic Timing I. Stop processing for CMS. Proceed to step 36 and check the Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. 35. Recheck Antibiotic Timing I a. If the Antibiotic Timing I is greater than 60 minutes and less than or equal to 120 minutes for at least one antibiotic dose on			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	Table 3.8 or Table 3.10, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. b. If the Antibiotic Timing I is less than zero minutes or greater than 120 minutes for all antibiotic doses on Table 3.8 or Table 3.10, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing for CMS. Proceed to Stratified Measures for Overall Rate (SCIP-Inf-1a) for The Joint Commission. 36. For The Joint Commission Only, continue processing for the Stratified Measures. Note: Initialize the Measure Category Assignment for each strata measure (b-g) to equal B, not in the Measure Population. Do not change the Measure Category Assignment that was already calculated for the overall rate (SCIP-Inf-1a). The rest of the algorithm will reset the appropriate Measure Category Assignment to be equal to the			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	overall rate´s (SCIP-Inf-1a) Measure Category Assignment. 37. Check Overall Rate Category Assignment a. If the Overall Rate Category Assignment is equal to B or X, set the Measure Category Assignment for the strata measures (SCIP-Inf-1b through SCIP-Inf-1h) to equal B, not in the Measure Population. Stop processing. b. If the Overall Rate Category Assignment is equal to D or E, continue processing and check the ICD-9-CM Principal Procedure Code. 38.Check ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.01, for Stratified Measure SCIP-Inf-1b, set the Measure Category Assignment for measure SCIP-Inf-1b to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 39. Recheck ICD-9-CM Principal			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.02, for Stratified Measure SCIP-Inf-1c, set the Measure Category Assignment for measure SCIP-Inf-1c to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 40. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.04, for Stratified Measure SCIP-Inf-1d, set the Measure Category Assignment for measure SCIP-Inf-1d to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.05 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 41. Recheck ICD-9-CM Principal Procedure Code			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	a. If the ICD-9-CM Principal Procedure Code is on Table 5.05, for Stratified Measure SCIP-Inf-1e, set the Measure Category Assignment for measure SCIP-Inf-1e to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.03 or 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 42. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.03, for Stratified Measure SCIP-Inf-1f, set the Measure Category Assignment for measure SCIP-Inf-1f to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07 or 5.08, continue processing and recheck the ICD-9-CM Principal Procedure Code. 43. Recheck ICD-9-CM Principal Procedure Code a. If the ICD-9-CM Principal Procedure Code is on Table 5.06 or 5.07, for Stratified Measure			

	Maintenance Measure 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	**Endorsed Measure 0270:** Timing of antibiotic prophylaxis- ordering physician	**Endorsed Measure 0269:** Timing of prophylactic antibiotics - administering physician	**Endorsed Measure 0472:** Prophylactic antibiotic received within one hour prior to surgical incision or at the time of delivery – cesarean section.
	SCIP-Inf-1g, set the Measure Category Assignment for measure SCIP-Inf-1g to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing. b. If the ICD-9-CM Principal Procedure Code is on Table 5.08, for Stratified Measure SCIP-Inf-1h, set the Measure Category Assignment for measure SCIP-Inf-1h to equal the Measure Category Assignment for measure SCIP-Inf-1a. Stop processing.			
Data Source	Electronic administrative data/claims, paper medical record/flow-sheet	Electronic administrative data/claims, lab data, paper medical record/flow-sheet	Electronic administrative data/claims	Lab data, paper medical record/flow-sheet, survey: patient
Level of Measurement /Analysis	Facility/agency	Clinicians: Individual, group	Clinicians: individual	Facility/agency
Care Settings	Hospital	Hospital, Ambulatory care: Ambulatory surgery center	Hospital, Ambulatory care: Ambulatory surgery center	Hospital

Statin Medication

	Maintenance Measure 0118: Anti-lipid treatment discharge	**New Candidate Measure 1519:** Statin therapy at discharge after lower extremity bypass (LEB)
Status	Currently undergoing review	Currently undergoing review
Steward	Society of Thoracic Surgeons	Society of Vascular Surgery
Description	Percent of patients aged 18 years and older undergoing isolated CABG who were discharged on a statin or other lipid-lowering regimen.	Percentage of patients aged 18 years and older undergoing infrainguinal lower extremity bypass who are prescribed a statin medication at discharge. This measure is proposed for both hospitals and individual providers.
Type of Measure	Process	Process
Numerator	Number of patients undergoing isolated CABG who were discharged on a statin or other lipid-lowering regimen. Time window:	Patients undergoing infrainguinal lower extremity bypass who are prescribed a statin medication at discharge. Time window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (i.e., reported as too low volume to report).
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"	ANY registry that includes anatomic details or CPT procedure codes is required to identify patients for numerator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) registries capture detailed anatomic information but the measure is not limited to these registries. Infrainguinal lower extremity bypass is defined as a bypass beginning at or below the external iliac artery and extending into the ipsilateral leg. It includes procedures with CPT codes 35656, 35556, 35583, 35666, 35566, 35585, 35671, 35571, 35587. The numerator is calculated as the number of patients age 18 and over undergoing such a procedure who are prescribed a statin medication at the time of discharge, which is also captured in the above registries.
Denominator	All patients undergoing isolated CABG.	All patients aged 18 years and older undergoing lower extremity bypass as defined above who are discharged alive, excluding those patients who are intolerant to statins.

	Maintenance Measure 0118: Anti-lipid treatment discharge	**New Candidate Measure 1519:** Statin therapy at discharge after lower extremity bypass (LEB)
	Time window: 12 months	Time window: Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (i.e., reported as too low volume to report).
Denominator Categories	Female, Male; 18 yrs and older	Female, Male; 18 years or older
Denominator Details	Number of isolated CABG procedures excluding cases with in-hospital mortality or cases for which discharge anti-lipid treatment use was contraindicated. Isolated CABG is determined as a procedure for which all of the following apply: - OpCAB is marked "Yes" - (VADProc is marked "No" or "Missing") or (VADProc is marked "Yes, Implanted" and UnplVAD is marked "yes") - OCarASDTy is marked "PFO" or "missing" - OCarAFibAProc is marked "primarily epicardial" or "missing" and - OpValve, VSAV, VSAVPr, ResectSubA, VSMV, VSMVPr, OpTricus, OpPulm, OpONCard, OCarLVA, OCarVSD, OCarSVR, OCarCong, OCarTrma, OCarCrTx, OCAoProcType, EndoProc, OCTumor, OCPulThromDis, OCarOthr are all marked "no" or "missing"	ANY registry that includes anatomic details or CPT procedure codes is required to identify patients for denominator inclusion. The Society for Vascular Surgery Vascular Quality Initiative and the Vascular Study Group of New England registries capture detailed anatomic information but the measure is not limited to these registries. Infrainguinal lower extremity bypass is defined as a bypass beginning at or below the external iliac artery and extending into the ipsilateral leg. It includes procedures with CPT codes 35656, 35556, 35583, 35666, 35566, 35585, 35671, 35571, 35587. Only patients who are discharged alive are included in the denominator, and patients who are intolerant to statins are excluded, as described below.
Exclusions	Cases are removed from the denominator if there was an in-hospital mortality or if discharge anti-lipid treatment was contraindicated.	Chart documentation that patient was not an eligible candidate for statin therapy due to known drug intolerance, or patient died before discharge.
Exclusion Details	Mortality Discharge Status (MtDCStat), Mortality Date (MtDate), and Discharge Date (DischDt) indicate an in-hospital mortality; DCLipid is marked as "Contraindicated"	Chart documentation that patient was not an eligible candidate for statin therapy due to known drug intolerance, or patient died before discharge. These data are captured in the SVS VQI and VSGNE registries.
Risk Adjustment	No risk adjustment necessary	No risk adjustment necessary
Stratification		Not required
Type Score	Rate/proportion	Rate/proportion
Algorithm		All patients age 18 and older undergoing infrainguinal LEB who were prescribed statin at discharge divided by (all patients over 18 undergoing infrainguinal LEB minus

	Maintenance Measure 0118: Anti-lipid treatment discharge	**New Candidate Measure 1519:** Statin therapy at discharge after lower extremity bypass (LEB)
		those intolerant to statins minus those who died before discharge).
Data Source	Registry data	Registry data
Level of Measurement /Analysis	Clinicians: Group; Facility/agency; Population: National, regional/network, states, counties or cities	Clinicians: Individual, group; Facility/agency; Can be measured at all levels
Care Settings	Hospital	Hospital

Venous Thromboembolism (VTE)

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
Status	Currently undergoing review	Endorsed 5/2008
Steward	Centers for Medicare & Medicaid Services	The Joint Commission
Description	Percentage of surgery patients who **received** appropriate Venous Thromboembolism (VTE) Prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time.	This measure assesses the number of patients who **received** VTE prophylaxis or have documentation why no VTE prophylaxis was given the day of or the day after hospital admission or surgery end date for surgeries that start the day of or the day after hospital admission.
Type of Measure	Process	Process
Numerator	Surgery patients who received appropriate VTE prophylaxis within 24 hours prior to Surgical Incision Time to 24 hours after Surgery End Time Appropriate prophylaxis according to Surgery Type: Intracranial Neurosurgery Any of the following: • Intermittent pneumatic compression devices (IPC) with or without graduated compression stockings (GCS) • Low-dose unfractionated heparin (LDUH) Low molecular weight heparin (LMWH)2 • LDUH or LMWH2 combined with IPC or GCS General Surgery Any of the following: • Low-dose unfractionated heparin (LDUH) • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor (Fondaparinux) • LDUH or LMWH or Factor Xa Inhibitor (fondaparinux) combined with IPC or GCS General Surgery with a reason for not administering pharmacological prophylaxis Any of the following: • Graduated Compression stockings (GCS) • Intermittent pneumatic compression devices (IPC) Gynecologic Surgery Any of the following: • Low-dose unfractionated heparin (LDUH) • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor (fondaparinux) • Intermittent pneumatic compression devices (IPC) • LDUH or LMWH or Factor Xa Inhibitor	Patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was given: the day of or the day after hospital admission, the day of or the day after surgery end date for surgeries that start the day of or the day after hospital admission. Time window:

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	(fondaparinux) combined with IPC or GCS Urologic Surgery Any of the following: • Low-dose unfractionated heparin (LDUH) • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor (fondaparinux) • Intermittent pneumatic compression devices (IPC) • Graduated compression stockings (GCS) • LDUH or LMWH or Factor Xa Inhibitor (fondaparinux) combined with IPC or GCS Elective Total Hip Replacement Any of the following started within 24 hours of surgery: • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor (Fondaparinux) • Warfarin Elective Total Knee Replacement Any of the following: • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor (Fondaparinux) • Warfarin • Intermittent pneumatic compression devices (IPC) • Venous foot pump (VFP) Hip Fracture Surgery Any of the following: • Low-dose unfractionated heparin (LDUH) • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor (Fondaparinux) • Warfarin Elective Total Hip Replacement with a reason for not administering pharmacological prophylaxis Any of the following: • Intermittent pneumatic compression devices (IPC) • Venous foot pump (VFP) Hip Fracture Surgery with a reason for not administering pharmacological prophylaxis Any of the following: • Graduated Compression Stockings (GCS) • Intermittent pneumatic compression devices (IPC) • Venous foot pump (VFP) Time window: 24 hours prior to incision to 24 hours after surgery end time	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
Numerator Details	Data Elements: Anesthesia Type VTE Prophylaxis VTE Timely	
Denominator	All selected surgery patients Time window: Entire inpatient admission	All patients. Inclusions: Not applicable Time window:
Denominator Categories	Female, Male; ≥18 years of age	Female, Male; ≥18 years of age
Denominator Details	Data Elements: Admission Date Anesthesia End Date Anesthesia End Time Anesthesia Start Date Anesthesia Start Time Birthdate Clinical Trial Discharge Date ICD-9-CM Principal Diagnosis Code ICD-9-CM Principal Procedure Code Laparoscope Perioperative Death Preadmission Warfarin Reason for Not Administering VTE Prophylaxis	
Exclusions	Data elements Clinical trial Laparoscope Perioperative death Preadmission warfarin Reason for not administering VTE prophylaxis	Patients less than 18 years of age Patients who have a length of stay (LOS) < two days and > 120 days Patients with Comfort Measures Only documented Patients enrolled in clinical trials Patients who are direct admits to intensive care unit (ICU), or transferred to ICU the day of or the day after hospital admission with ICU LOS = one day Patients with ICD-9-CM Principal Diagnosis Code of Mental Disorders or Stroke as defined in Appendix A, Table 7.01, 8.1 or 8.2 Patients with ICD-9-CM Principal or Other Diagnosis Codes of Obstetrics or VTE as defined in Appendix A, Table 7.02, 7.03 or 7.04 Patients with ICD-9-CM Principal Procedure Code of Surgical Care Improvement Project (SCIP) VTE selected surgeries as defined in Appendix A, Tables 5.17, 5.19, 5.20, 5.21, 5.22, 5.23, 5.24
Exclusion Details	Excluded Populations:	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	Patients less than 18 years of age Patients who have a Length of Stay greater than 120 days Burn patients (as defined in Appendix A, Table 5.14 for ICD-9-CM codes) Patients with procedures performed entirely by Laparoscope Patients enrolled in clinical trials Patients who are on warfarin prior to admission Patients whose ICD-9-CM principal procedure occurred prior to the date of admission Patients whose total surgery time is less than or equal to 60 minutes Patients with hospital length of stay less than or equal to 3 calendar days Patients who expire perioperatively Patients with reasons for not administering both mechanical and pharmacological prophylaxis Patients who did not receive VTE Prophylaxis (as defined in the Data Dictionary)	
Risk Adjustment	No risk adjustment necessary	No risk adjustment necessary
Stratification	No stratification except by surgery type and those are Intracranial Neurosurgery Appendix A,Table 5.17 General Surgery Appendix A, Table 5.19 Gynecologic Surgery Appendix A, Table 5.20 Urologic Surgery Appendix A,Table 5.21 Elective Total Hip Replacement Appendix A,Table 5.22 Elective Total Knee Replacement Appendix A,Table 5.23 Hip Fracture Surgery Appendix A,Table 5.24	
Type Score	Rate/proportion	
Algorithm	SCIP- Venous Thromboembolism (VTE)-2: Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis Within 24 Hours Prior to Surgery to 24 Hours After Surgery Numerator: Surgery patients who received Venous Thromboembolism (VTE) prophylaxis 24 hours prior to Anesthesia Start Time to 24 hours after Anesthesia End Time.	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	Denominator: All selected surgery patients. Variable Key: Patient Age, Length of Stay (LOS), Surgery Length, Surgery Days 1.Start processing. Run cases that are included in the Surgical Care Improvement Project (SCIP) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure. 2.Calculate Patient Age. The Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age. 3.Check Patient Age a.If Patient Age is less than 18 years, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b.If Patient Age is greater than or equal to 18 years, continue processing and proceed to ICD-9-CM Principal Procedure Code. 4.Check ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is not on Table 5.17, 5.19, 5.20, 5.21, 5.22, 5.23, or 5.24, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.17, 5.19, 5.20, 5.21, 5.22, 5.23, or 5.24, continue processing and proceed to ICD-9-CM Principal Diagnosis Code. 5.Check ICD-9-CM Principal Diagnosis Code a.If the ICD-9-CM Principal Diagnosis Code is on Table 5.14, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b.If the ICD-9-CM Principal Diagnosis Code is not on Table 5.14, continue processing and proceed to the LOS calculation. 6.Calculate LOS. LOS, in days, is equal to the Discharge Date minus the Admission Date. 7.Check LOS a.If the LOS is less than or equal to 3 days, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Calculation. Stop processing. b.If the LOS is greater than 3 days, continue	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	processing and proceed to Laparoscope. 8.Check Laparoscope a.If Laparoscope is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If Laparoscope equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c.If Laparoscope equals 2, continue processing and proceed to Clinical Trial. 9.Check Clinical Trial a.If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c.If Clinical Trial equals No, continue processing and proceed to Preadmission Warfarin. 10.Check Preadmission Warfarin a.If Preadmission Warfarin is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If Preadmission Warfarin equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c.If Preadmission Warfarin equals No, continue processing and proceed to Anesthesia Start Date. 11.Check Anesthesia Start Date a.If the Anesthesia Start Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) SCIP-VTE-2-13 b.If the Anesthesia Start Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c.If Anesthesia Start Date equals a Non	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	Unable To Determine Value, continue processing and proceed to the Surgery Days calculation. 12.Calculate Surgery Days. Surgery Days, in days, is equal to the Anesthesia Start Date minus the Admission Date. 13.Check Surgery Days a.If the Surgery Days is less than zero, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b.If the Surgery Days is greater than or equal to zero, continue processing and proceed to Perioperative Death. 14.Check Perioperative Death a.If Perioperative Death is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If Perioperative Death equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c.If Perioperative Death equals No, continue processing and proceed to Anesthesia Start Time. 15.Check Anesthesia Start Time a.If the Anesthesia Start Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If the Anesthesia Start Time equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c.If the Anesthesia Start Time equals a Non Unable to Determine Value, continue processing and proceed to Anesthesia End Date. 16.Check Anesthesia End Date a.If the Anesthesia End Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If the Anesthesia End Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	processing. c.If the Anesthesia End Date equals a Non Unable to Determine Value, continue processing and proceed to Anesthesia End Time. Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) SCIP-VTE-2-14 17.Check Anesthesia End Time a.If the Anesthesia End Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If the Anesthesia End Time equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. c.If the Anesthesia End Time equals a Non Unable to Determine Value, continue processing and proceed to the Surgery Length calculation. 18.Calculate Surgery Length. Surgery Length, in minutes, is equal to the Anesthesia End Date and Anesthesia End Time minus the Anesthesia Start Date and Anesthesia Start Time. 19.Check Surgery Length a.If the Surgery Length is less than or equal to 60 minutes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. b.If the Surgery Length is greater than 60 minutes, continue processing proceed to Reason for Not Administering VTE Prophylaxis. 20.Check Reason for Not Administering VTE Prophylaxis a.If Reason for Not Administering VTE Prophylaxis is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If Reason for Not Administering VTE Prophylaxis equals 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	c.If Reason for Not Administering VTE Prophylaxis equals 1, 2, or 4, continue processing and proceed to VTE Prophylaxis. 21.Check VTE Prophylaxis a.If no values are populated in the VTE grid, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. b.If VTE Prophylaxis equals A, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing. c.If the VTE grid is populated with any of values 1, 2, 3, 4, 5, 6, 7, or 8, continue processing and proceed to recheck the ICD-9-CM Principal Procedure Code. Note: If VTE Prophylaxis field is populated with an allowable value of 1, 2, 3, 4, 5, 6, 7, or 8 and the corresponding VTE Timely field is Missing, the entire case will be rejected by The Joint Commission and Centers for Medicare and Medicaid Services (CMS) warehouses. 22.Recheck ICD-9-CM Principal Procedure Code a.If the ICD-9-CM Principal Procedure Code is on Tables 5.17, 5.20, 5.21, 5.22, 5.23, or 5.24, continue processing. Proceed to step 26 and recheck ICD-9-CM Principal Procedure Code for Tables 5.17, 5.20, 5.21, 5.22, 5.23, and 5.24. Do not recheck step 23 and step 25 VTE Prophylaxis or step 24 Reason for Not Administering VTE Prophylaxis for Tables 5.17, 5.20, 5.21, 5.22, 5.23, and 5.24 as steps 23 through 26 check for codes on Table 5.19 only. b.If the ICD-9-CM Principal Procedure Code is on Table 5.19, continue processing and recheck VTE Prophylaxis. 23.Recheck VTE Prophylaxis only if the ICD-9-CM Principal Procedure Code is on Table 5.19 a.If any VTE Prophylaxis equals 1, 2, or 5, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 1 or 2 or 5, the case will	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. 2.If VTE Timely equals No for VTE Prophylaxis of 1 and 2 and 5, continue processing and recheck Reason for Not Administering VTE Prophylaxis. b.If none of the VTE Prophylaxis equals 1, 2, or 5, continue processing and proceed to recheck Reason for Not Administering VTE Prophylaxis. 24.Recheck Reason for Not Administering VTE Prophylaxis a.If Reason for Not Administering VTE Prophylaxis equals 1 or 4, continue processing and proceed to Anesthesia Type. 1.If Anesthesia Type is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. 2.If Anesthesia Type equals 1 or 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 3.If Anesthesia Type equals 2 or 3, continue processing and recheck VTE Prophylaxis. b.If Reason for Not Administering VTE Prophylaxis equals 2, continue processing and recheck VTE Prophylaxis. 25.Recheck VTE Prophylaxis a.If any VTE Prophylaxis equals 3 or 4, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 3 or 4, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. 2.If VTE Timely equals No for VTE Prophylaxis of 3 and 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If none of the VTE Prophylaxis equals 3 or 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 26.Recheck ICD-9-CM Principal Procedure	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	Code for Tables 5.17, 5.20, 5.21, 5.22, 5.23, and 5.24 only if the ICD-9-CM Principal Procedure Code was not on Table 5.19 a.If the ICD-9-CM Principal Procedure Code is on Table 5.17, continue processing and recheck VTE Prophylaxis. 1.If any VTE Prophylaxis equals 1, 2, or 3, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. i.If VTE Timely equals Yes for VTE Prophylaxis of 1 or 2 or 3, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. ii.If VTE Timely equals No for VTE Prophylaxis of 1 and 2 and 3, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 2.If none of the VTE Prophylaxis equals 1, 2, or 3, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Tables 5.20, 5.21, 5.22, 5.23, or 5.24, continue processing and recheck ICD-9-CM Principal Procedure Code. 27.Recheck ICD-9-CM Principal Procedure Code for Tables 5.20, 5.21, 5.22, 5.23, and 5.24 only if the ICD-9-CM Principal Procedure Code is not on Tables 5.17 or 5.19 a.If the ICD-9-CM Principal Procedure Code is on Table 5.20, continue processing and recheck VTE Prophylaxis. 1.If any VTE Prophylaxis equals 1, 2, 3 or 5, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. i.If VTE Timely equals Yes for VTE Prophylaxis of 1 or 2 or 3 or 5, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. ii.If VTE Timely equals No for VTE Prophylaxis of 1 and 2 and 3 and 5, the case will proceed to a Measure Category	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	Assignment of D and will be in the Measure Population. Stop processing. 2.If none of the VTE Prophylaxis equals 1, 2, 3, or 5, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Tables 5.21, 5.22, 5.23, or 5.24, continue processing and recheck ICD-9-CM Principal Procedure Code. 28.Recheck ICD-9-CM Principal Procedure Code for Tables 5.21, 5.22, 5.23, and 5.24 only if the ICD-9-CM Principal Procedure Code is not on Tables 5.17, 5.19, or 5.20 a.If the ICD-9-CM Principal Procedure Code is on Table 5.21, continue processing and recheck VTE Prophylaxis. 1.If any VTE Prophylaxis equals 1, 2, 3, 4, or 5, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. i.If VTE Timely equals Yes for VTE Prophylaxis of 1 or 2 or 3 or 4 or 5, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. ii.If VTE Timely equals No for VTE Prophylaxis of 1 and 2 and 3 and 4 and 5, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 2.If none of the VTE Prophylaxis equals 1, 2, 3, 4, or 5, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Tables 5.22, 5.23, or 5.24, continue processing and recheck ICD-9-CM Principal Procedure Code. Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) SCIP-VTE-2-18 29.Recheck ICD-9-CM Principal Procedure Code for Tables 5.22, 5.23, and 5.24 only if the ICD-9-CM Principal Procedure Code is not on Tables 5.17, 5.19, 5.20, or 5.21 a.If the ICD-9-CM Principal Procedure Code	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	is on Table 5.22, continue processing and recheck VTE Prophylaxis. b.If the ICD-9-CM Principal Procedure Code is on Tables 5.23 or 5.24, continue processing. Proceed to step 34 and recheck ICD-9-CM Principal Procedure Code for Tables 5.23 and 5.24. Do not recheck steps 30, 31 and 33 VTE Prophylaxis or step 32 Reason for Not Administering VTE Prophylaxis. 30.Recheck VTE Prophylaxis only if the ICD-9-CM Principal Procedure Code is on Table 5.22 a.If any VTE Prophylaxis equals 2, 5, 6, or 8, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 2 or 5 or 6 or 8, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. 2.If VTE Timely equals No for VTE Prophylaxis of 2 and 5 and 6 and 8, continue processing and recheck VTE Prophylaxis. b.If none of the VTE Prophylaxis equals 2, 5, 6, or 8, continue processing and proceed to recheck VTE Prophylaxis. 31.Recheck VTE Prophylaxis a.If any VTE Prophylaxis equals 1, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 1, continue processing and check ICD-9-CM Principal or Other Diagnosis Codes. i.If any of the ICD-9-CM Principal or Other Diagnosis Codes is on Table 5.13, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. ii.If none of the ICD-9-CM Principal or Other Diagnosis Codes is on Table 5.13, continue processing and recheck Reason for Not Administering VTE Prophylaxis. 2.If VTE Timely equals No for VTE Prophylaxis of 1, continue processing and	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	recheck Reason for Not Administering VTE Prophylaxis. b.If none of the VTE Prophylaxis equals 1, continue processing and proceed to recheck Reason for Not Administering VTE Prophylaxis. Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) SCIP-VTE-2-19 32.Recheck Reason for Not Administering VTE Prophylaxis a.If Reason for Not Administering VTE Prophylaxis equals 1 or 4, continue processing and recheck Anesthesia Type. 1.If Anesthesia Type is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. 2.If Anesthesia Type equals 1 or 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 3.If Anesthesia Type equals 2 or 3, continue processing and recheck VTE Prophylaxis. b.If Reason for Not Administering VTE Prophylaxis equals 2, continue processing and proceed to recheck VTE Prophylaxis. 33.Recheck VTE Prophylaxis a.If any VTE Prophylaxis equals 3 or 7, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 3 or 7, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. 2.If VTE Timely equals No for VTE Prophylaxis of 3 and 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If none of the VTE Prophylaxis equals 3 or 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 34.Recheck ICD-9-CM Principal Procedure Code for Tables 5.23 and 5.24 only if the ICD-	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	9-CM Principal Procedure Code is not on Tables 5.17, 5.19, 5.20, 5.21, or 5.22 a.If the ICD-9-CM Principal Procedure Code is on Table 5.23, continue processing and recheck VTE Prophylaxis. 1.If Any VTE Prophylaxis is equal to 2, 3, 5, 6, 7, or 8, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. i.If VTE Timely equals Yes for VTE Prophylaxis of 2 or 3 or 5 or 6 or 7 or 8, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. ii.If VTE Timely equals No for VTE Prophylaxis of 2 and 3 and 5 and 6 and 7 or 8, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 2.If none of the VTE Prophylaxis is equal to 2, 3, 5, 6, 7, or 8, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If the ICD-9-CM Principal Procedure Code is on Table 5.24, continue processing and recheck VTE Prophylaxis. 35.Recheck VTE Prophylaxis a.If any VTE Prophylaxis equals 1, 2, 5, 6, or 8, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 1 or 2 or 5 or 6 or 8, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. 2.If VTE Timely equals No for VTE Prophylaxis of 1 and 2 and 5 and 6 and 8, continue processing and recheck Reason for Not Administering VTE Prophylaxis. b.If none of the VTE Prophylaxis equals 1, 2, 5, 6, or 8, continue processing and proceed to recheck Reason for Not Administering VTE Prophylaxis. 36.Recheck Reason for Not Administering VTE Prophylaxis	

	Maintenance Measure 0218: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time	**Endorsed Measure 0371:** Venous thromboembolism (VTE) prophylaxis
	a.If Reason for Not Administering VTE Prophylaxis equals 1 or 4, continue processing and recheck Anesthesia Type. 1.If Anesthesia Type is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing. 2.If Anesthesia Type equals 1 or 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. 3.If Anesthesia Type equals 2 or 3, continue processing and recheck VTE Prophylaxis. b.If Reason for Not Administering VTE Prophylaxis equals 2, continue processing and proceed to recheck VTE Prophylaxis. 37.Recheck VTE Prophylaxis a.If none of the VTE Prophylaxis equals 3, 4, or 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing. b.If any VTE Prophylaxis equals 3, 4, or 7, continue processing and check VTE Timely. Note: When evaluating VTE Timely consider only the values corresponding to the recommended VTE Prophylaxis. 1.If VTE Timely equals Yes for VTE Prophylaxis of 3 or 4 or 7, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing. 2.If VTE Timely equals No for VTE Prophylaxis of 3 or 4 or 7, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.	
Data Source	Electronic clinical data, electronic health/medical record, paper medical record/flow-sheet	Electronic administrative data/claims, electronic health/medical record, paper medical record/flow-sheet
Level of Measurement /Analysis	Facility/agency; Program: Quality improvement organization (QIO); Can be measured at all levels	Facility/agency
Care Settings	Hospital	Hospital

APPENDIX D—GAPS IN THE SURGERY PORTFOLIO

The measures in the surgery portfolio have been assigned to appropriate domains reflecting the priorities and goals of NQF, the National Priorities Partnership, and the National Quality Strategy. Titles of measures that are NQF-endorsed® and those under consideration in this project are prefaced with an identifying number and the domains they address are marked with a "Yes". Those in the section titled "Identified Gap Topic Areas" have been identified by the Steering Committee as gap areas for which measures are needed in one or more identified domains. Gaps in a number of areas persist. Additional measures are needed to address bariatric surgery, post-surgical pain management, anesthesia, surgery-related mortality, wrong site surgery, retained foreign object and post-operative myocardial infarction.

Surgery TOPIC AREA and related measures	Domains Note: "Yes" identifies domain targeted by the measure.							
	Cross-Cutting including across settings, disciplines, populations, & combinations Composites Emphasis on longitudinal measures over specified timeframe (e.g., 30 day, etc.)	Care Coordination & Management including communication, Pre-, intra-, post-op care; secondary prevention; intermediate outcomes, recovery & rehabilitation, End of Life care	Population Health including prevention, healthy lifestyle behaviors, populations at risk & disparities (age, race/ethnicity, gender, geographic & socio-economic)	Safety including morbidity & mortality, complications of care, prevention of adverse events including HAI, medication adherence/use	Affordability including cost/efficiency direct/indirect cost, overuse, underuse, appropriateness	Access including access, timeliness	Patient & Family Engagement including Patient/ Family Engagement (perspective, knowledge, understanding, motivation, risk behavior), Satisfaction, Self-management Shared Decision making	Patient Reported Outcomes including Health Status (quality of life, functional status, productivity, burden on patient & family)
Identified Gap Topic Areas								
Bariatric Surgery		Yes				Yes		Yes
Post-surgical Pain Management		Yes		Yes			Yes	Yes
Anesthesia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
• Satisfaction with Perioperative Care	Yes	Yes					Yes	Yes
• Participation in a systematic national database of anesthesia care			Yes	Yes				
• Serious adverse event rate in elective surgical cases	Yes	Yes	Yes	Yes				
Surgery-related Mortality (specifically mortality with risk stratification; i.e. high risk, low risk and reasons/causes)		Yes		Yes				

Surgery TOPIC AREA and related measures	Domains Note: "Yes" identifies domain targeted by the measure.							
	Cross-Cutting including across settings, disciplines, populations, & combinations Composites Emphasis on longitudinal measures over specified timeframe (e.g., 30 day, etc.)	Care Coordination & Management including communication, Pre-, intra-, post-op care; secondary prevention; intermediate outcomes, recovery & rehabilitation, End of Life care	Population Health including prevention, healthy lifestyle behaviors, populations at risk & disparities (age, race/ ethnicity, gender, geographic & socio-economic)	Safety including morbidity & mortality, complications of care, prevention of adverse events including HAI, medication adherence/use	Affordability including cost/ efficiency direct/indirect cost, overuse, underuse, appropriateness	Access including access, timeliness	Patient & Family Engagement including Patient/ Family Engagement (perspective, knowledge, understanding, motivation, risk behavior), Satisfaction, Self-management Shared Decision making	Patient Reported Outcomes including Health Status (quality of life, functional status, productivity, burden on patient & family)
Wrong Site Surgery	Yes	Yes		Yes				
Retained Foreign Object	Yes	Yes		Yes				
Post-operative Myocardial Infarction								
Cardiac Surgery								
0125 – Timing of antibiotic prophylaxis for cardiac surgery patients					Yes			
0126- Selection of antibiotic prophylaxis for cardiac surgery patients		Yes						
0128- Duration of prophylaxis for cardiac surgery patients					Yes			
0239- Venous thromboembolism (VTE) prophylaxis		Yes						
0284- Beta blocker therapy prior to admission who received a beta blocker during the perioperative period		Yes						
0371- Venous thromboembolism (VTE) prophylaxis		Yes						
0372- Intensive care unit (ICU) VTE prophylaxis		Yes						
0456- Participation in a systematic national database for general thoracic surgery				Yes				

Surgery TOPIC AREA and related measures	Domains Note: "Yes" identifies domain targeted by the measure.							
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0670- Cardiac stress imaging not meeting appropriate use criteria: Preoperative evaluation in low risk surgery patients		Yes						
0694- Hospital risk-standardized complication rate following implantation of implantable cardioverter-defibrillator (ICD)		Yes						
0699- 30-day post-hospital HF discharge care transition composite measure		Yes						
CABG								
0113 - Participation in systematic database for cardiac surgery				Yes				
0114 – Post-operative renal failure		Yes						
0115 – Surgical re-exploration		Yes		Yes				
0116 – Anti-platelet medication at discharge		Yes						
0117- Beta blockade at discharge		Yes						
0118 – Anti-lipid treatment at discharge		Yes						
0119- Operative mortality for CABG				Yes				
0127- Pre-operative beta blockade		Yes			Yes			

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0129- Prolonged intubation (ventilation)		Yes						
0130- Deep sternal wound infection rate		Yes						
0131- Stroke/cerebrovascular accident		Yes						
0133- PCI mortality (risk-adjusted)				Yes				
0134- IMA in CABG		Yes						
0165- Percutaneous coronary intervention (PCI) volume		Yes						
0236- Pre-op beta blocker in patient with isolated CABG (2)		Yes						
0237- Anti-platelet medication on discharge		Yes						
0300- Cardiac surgery patients with controlled postoperative blood glucose		Yes			Yes			
0325- Discharged on antiplatelet therapy		Yes						
0642- Cardiac rehabilitation patient referral from an inpatient setting		Yes						
0643- Cardiac rehabilitation patient referral from an outpatient setting		Yes						
695- Hospital 30-day risk-standardized readmission rates following percutaneous coronary intervention (PCI)		Yes		Yes				
0696- The STS CABG composite score		Yes						

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AVR								
0120- Operative mortality for AVR		Yes						
0123- Operative mortality for AVR + CABG surgery		Yes						
MVR								
0121- Operative mortality for MVR		Yes						
0122- Operative mortality MVR + CABG surgery		Yes						
1501- Operative mortality for MV repair		Yes						
1502- Operative mortality for MV repair + CABG surgery		Yes						
AAA								
0357- AAA volume		Yes						
0359- AAA repair mortality rate		Yes						
1523- In-hospital mortality following elective non-ruptured open AAA repair		Yes						
1534- In-hospital mortality following EVAR		Yes						
Abdominal								
0273- Perforated appendicitis			Yes					

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Admission/Transfers								
0265- Hospital transfer/admission	Yes							
Cancer								
0219- Post breast conserving surgery irradiation		Yes						
0221- Needle biopsy to establish diagnosis of cancer precedes surgical excision/resection		Yes						
0222- Patients with early stage breast cancer who have evaluation of the axilla		Yes						
0223- Adjuvant chemotherapy is considered or administered within 4 months (120 days) of surgery to patients under the age of 80 with AJCC III (lymph node positive) colon cancer		Yes						
0392- Colorectal cancer resection pathology reporting- pT category (primary tumor) and pN category (regional lymph nodes) with histologic grade		Yes						

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0455- Recording of clinical stage for lung cancer and esophageal cancer resection		Yes						
0457- Recording of performance status (zubrod, karnofsky, WHO or ECOG performance status) prior to lung or esophageal cancer resection		Yes						
0458- Pulmonary function tests before major anatomic lung resection (pneumonectomy, lobectomy)		Yes						
0459- Risk-adjusted morbidity after lobectomy for lung cancer				Yes				
0460- Risk-adjusted morbidity and mortality for esophagectomy for cancer				Yes				
0561- Melanoma coordination of care		Yes						
0645- Biopsy follow-up		Yes						
706- Risk adjusted colorectal surgery outcome measure				Yes				

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Carotid								
0465-Perioperative anti-platelet therapy for patients undergoing carotid endarterectomy		Yes						
0466- Use of patch during conventional carotid endarterectomy		Yes		Yes				
0588- Stent drug-eluting clopidogrel		Yes						
1540- Postoperative stroke or death in asymptomatic patients undergoing carotid endarterectomy		Yes						
1543- Postoperative stroke or death in asymptomatic patients undergoing carotid artery stenting (CAS)		Yes						
Cataracts								
0564- Complications within 30 days following cataract surgery requiring additional surgical procedures		Yes						
0565- Cataracts: 20/40 or better visual acuity within 90 days following cataract surgery		Yes						
1536- Cataracts: Improvement in patient's visual function within 90 days following cataract surgery					Yes			

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Esophageal								
0360- Esophageal resection mortality rate		Yes						
0361- Esophageal resection volume		Yes						
General								
0139- Percentage of ICU and high-risk nursery patients, who over a certain amount of days acquired a central line catheter-associated blood stream infections over a specified amount of line-days				Yes				
0141- Patient fall rate		Yes		Yes				
0178- Improvement in status of surgical wounds				Yes				
0201- Pressure ulcer prevalence		Yes		Yes				
0202- Falls with injury		Yes		Yes				
0203- Restraint prevalence (vest and limb only)		Yes		Yes				
0205- Nursing care hours per patient day (RN, LPN, and UAP)		Yes		Yes	Yes	Yes		

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0259- Hemodialysis vascular access - decision-making by surgeon to maximize placement of autogenous arterial venous fistula		Yes						
0264- Prophylactic intravenous antibiotic timing	Yes				Yes			
0266- Patient fall				Yes				
0267- Wrong site, wrong side, wrong patient, wrong procedure, wrong implant		Yes						
0268- Selection of prophylactic antibiotic: first OR second generation cephalosporin		Yes						
0269- Timing of prophylactic antibiotics-administering physician					Yes			
0270- Timing of antibiotic prophylaxis: ordering physician					Yes			
0271- Discontinuation of prophylactic antibiotics (non-cardiac procedures)		Yes						
0299- Surgical site infection rate		Yes		Yes				
0301- Appropriate hair removal *(reserve status)*	Yes	Yes						

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0305- LBP: Surgical timing					Yes			
0307- LBP: Patient education						Yes		
0310- LBP: Shared decision making						Yes		
0311- LBP: Post-surgical outcomes		Yes						
0316- LBP: Mental health assessment		Yes						
0344- Accidental puncture or laceration (PDI 1) (risk adjusted)		Yes		Yes				
0345- Accidental puncture or laceration (PSI 15)		Yes		Yes				
0346- Latrogenic pneumothorax (PSI 6) (risk adjusted)		Yes						
0348- Latrogenic pneumothorax in Non-Neonates (PDI 5) (risk adjusted)		Yes						
0351- Death among surgical inpatients with serious, treatable complications		Yes						
0352- Failure to rescue in-hospital mortality	Yes	Yes						
0353- Failure to rescue 30-day mortality	Yes	Yes						
0362- Foreign body left after procedure (PDI 3)				Yes				

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0450- Postoperative DVT or PE (PSI 12)					Yes			
0452- Surgery patients with perioperative temperature management		Yes						
0453- Urinary catheter removed on postoperative day 1 (POD1) or postoperative day 2 (POD2) with day of surgery being day zero.		Yes						
0454- Anesthesiology and critical care: Perioperative temperature management		Yes						
0470- Incidence of episiotomy		Yes						
0472- Prophylactic antibiotic received within one hour prior to surgical Incision or at the time of delivery – cesarean section.					Yes			
0473- Appropriate DVT prophylaxis in women undergoing cesarean delivery					Yes			
0478- Nosocomial blood stream infections in neonates (NQI #3)		Yes						

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0505- Thirty-day all-cause risk standardized readmission rate following acute myocardial infarction (AMI) hospitalization.		Yes						
0515- Ambulatory surgery patients with appropriate method of hair	Yes	Yes						
0527- Prophylactic antibiotic received within 1 hour prior to surgical incision SCIP-Inf-1	Yes				Yes			
0528- Prophylactic antibiotic selection for surgical patients	Yes							
0529- Prophylactic antibiotic discontinued within 24 hours after surgery end time	Yes				Yes			
0533- Postoperative respiratory failure (PSI #11)		Yes						
0534- Hospital specific risk-adjusted measure of mortality or one or more major complications within 30 days of a lower extremity bypass (LEB).				Yes				

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0551- Ace inhibitor / angiotensin receptor blocker use and persistence among members with coronary artery disease at high risk for coronary events				Yes				
0581- Deep vein thrombosis anticoagulation >= 3 Months		Yes						
0593- Pulmonary embolism anticoagulation >= 3 Months		Yes						
0605- Patient(s) that had a serum creatinine in last 12 reported months.		Yes						
0610- Heart failure - Use of ACE inhibitor (ACEI) or angiotensin receptor blocker (ARB) therapy		Yes						
0624- Atrial fibrillation - Warfarin therapy		Yes						
0637- Discontinuation of prophylactic antibiotics (cardiac procedures)		Yes						
0644- Patients with a transient ischemic event ER visit that had a follow up office visit.		Yes						
0646- Reconciled medication list received by discharged patients (inpatient discharges to home/self care or any other site of care)		Yes						

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0647- Transition record with specified elements received by discharged patients (inpatient discharges to home/ self care or any other site of care) (inpatient discharges to home/self care or any other site of care)		Yes						
0648- Timely transmission of transition record (inpatient discharges to home/ self care or any other site of care)		Yes						
0697- Risk adjusted case mix adjusted elderly surgery outcomes measure			Yes	Yes				
0702- Intensive care unit (ICU) length-of-stay (LOS)		Yes						
0703- Intensive Care: In-hospital mortality rate				Yes				
0714- Standardized mortality ratio for neonates undergoing non-cardiac surgery				Yes				
0715- Standardized adverse event ratio for children and adults undergoing cardiac catheterization for congenital heart disease				Yes				

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Lower Extremity								
0285- Lower extremity amputations among patients with diabetes (PQI 16)		Yes						
1519- Statin therapy at discharge after LEB		Yes						
Pancreatic								
0365- Pancreatic resection mortality rate		Yes						
0366- Pancreatic resection volume		Yes						
0451- Call for a measure of glycemic control with intravenous insulin implementation		Yes						
0603- Adult(s) taking insulin with evidence of self-monitoring blood glucose testing.		Yes						
0604- Adult(s) with diabetes mellitus that had a serum creatinine in last 12 reported months.		Yes						
Pediatric								
0339- Pediatric heart surgery mortality		Yes	Yes					
0340- Pediatric heart surgery volume		Yes	Yes					
0713- Ventriculoperitoneal (VP) shunt malfunction rate in children		Yes						

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THA/TKA								
1550- Hospital-level risk-standardized complication rate following elective THA and TKA		Yes						
1551- Hospital-level 30-day all-cause risk-standardized readmission rate following elective THA and TKA		Yes						
VTE Prophylaxis								
0218- Received appropriate VTE prophylaxis within 24 hours					Yes			
0374- VTE patients unfractionated heparin (UFH) dosages/platelet count monitoring by protocol (or nomogram) receiving unfractionated heparin (UFH) with dosages/ platelet count monitored by protocol (or nomogram)					Yes			
0375- VTE discharge instructions		Yes						
0376- Incidence of potentially preventable VTE				Yes				