NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0125 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Timing of Antibiotic Prophylaxis for Cardiac Surgery Patients
De.2 **Brief description of measure***:* 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)
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure**
De.4 **National Priority Partners Priority Area:** Safety De.5 **IOM Quality Domain**: Safety De.6 **Consumer Care Need:** Getting better

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission A.4 **Measure Steward Agreement attached:** STS Measure Steward Agreement. Fully Executed-634267323027557342.pdf	**A** Y☐ N☐

B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Frequently performed procedure, Leading cause of morbidity/mortality, High resource use, Severity of illness, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Postoperative mediastinitis is an infection of the mediastinal space after cardiac surgery. The incidence of deep sternal infections (mediastinitis) associated with cardiac surgery ranges between 0.25% and 4% [1]. The incidence of postoperative mediastinitis can be decrease by assuring that "patients aged 18 years and older undergoing cardiac surgery receive prophylactic antibiotics within one hour of surgical incision or start of procedure if no incision was required (two hours if receiving vancomycin or fluoroquinolone)". Reference 1 below states: "Postoperative mediastinitis carries a very high hospital mortality [3–5] and is also associated with reduced long-term survival [3]. This complication invariably involves an additional operation, a prolonged hospitalization, a significant toll in clinical resources, and dramatically increased costs. Anyone who has provided care for a patient with mediastinitis also knows well the emotional cost not only for the patient but also for the family, the nursing staff, and the surgeons. Truly one of the most devastating infections in all of surgery, this dreaded complication influences the perioperative management strategy of virtually all cardiothoracic surgeons."	**1a** C☐ P☐ M☐ N☐

1a.4 Citations for Evidence of High Impact: 1. Edwards FH, Engelman RM, Houck P, Shahian DM, Bridges CR; Society of Thoracic Surgeons. The Society of Thoracic Surgeons Practice Guideline Series: Antibiotic Prophylaxis in Cardiac Surgery, Part I: Duration. Ann Thorac Surg. 2006 Jan;81(1):397-404. No abstract available. PMID: 16368422
2. Engelman R, Shahian D, Shemin R, Guy TS, Bratzler D, Edwards F, Jacobs M, Fernando H, Bridges C; Workforce on Evidence-Based Medicine, Society of Thoracic Surgeons. The Society of Thoracic Surgeons practice guideline series: Antibiotic prophylaxis in cardiac surgery, part II: Antibiotic choice. Ann Thorac Surg. 2007 Apr;83(4):1569-76. Review. No abstract available. PMID: 17383396
3. Braxton JH, Marrin CAS, McGrath PD, et al. 10-year follow-up of patients with and without mediastinitis. Sem Thorac Cardiovasc Surg 2004;16:70–6.
4. Demmy TL, Park SB, Liebler GA, et al. Recent experience with major sternal wound complications. Ann Thorac Surg 1990;49:458–62.
5. Tang GHL, Maganti M, Weisel RD, Borger MA. Prevention and management of deep sternal wound infection. Sem Thorac Cardiovasc Surg 2004;16:62–9.
6. American Society of Health-System Pharmacists. ASHP Therapeutic Guidelines on Antimicrobial Prophylaxis in Surgery; March 23, 2004. Available at www.ashp.org. Last accessed April 20, 2004.
7. Centers for Disease Control and Prevention (CDC) National Nosocomial Infections Surveillance (NNIS) System. National nosocomial infections surveillance (NNIS) system report, data summary from January 1992 to June 2003, issued August 2003. Am J Infect Control. 2003;31:481-498.
8. Classen DC, Evans RS, Pestotnik SL, Horn SD, Menlove RL, Burke JP. The timing of prophylactic administration of antibiotics and the risk of surgical-wound infection. N Engl J Med. 1992;326(5):281-286.

1b. Opportunity for Improvement

1b.1 Benefits (improvements in quality) envisioned by use of this measure: The incidence of deep sternal infections (mediastinitis) associated with cardiac surgery ranges between 0.25% and 4% [1]. The incidence of postoperative mediastinitis can be decrease by assuring that "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)".

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
Please see attachment and below

Measurement	Timing of Antibiotic Administration for Cardiac Surgery Patients
N	786
Mean	98.0%
1st	83.2%
5th	93.2%
10th	95.2%
25th	97.7%
Median	99.2%
75th	99.9%
90th	100.0%
95th	100.0%
99th	100.0%
Outlier	347 (44.1%)
High	259
Low	88

1b.3 Citations for data on performance gap:
Dates: January 1, 2009-December 31, 2009

Analysis includes 786 STS Adult Cardiac Surgery Database Participants who had at least 100 eligible cases for the measure and reported data to STS for all 12 months.

1b.4 Summary of Data on disparities by population group:

1b
C☐
P☐
M☐
N☐

please see attachment

1b.5 Citations for data on Disparities:
Analysis includes STS Adult Cardiac Surgery Database Participants that had more than 50 eligible cases in 2008 and 2009, and reported data for at least 15 months.

375888 Patients from 887 Participants were included in the Gender = Male sub-group.
175058 Patients from 819 Participants were included in the Gender = Female sub-group.
29844 Patients from 231 Participants were included in the Race = Black sub-group.
477888 Patients from 881 Participants were included in the Race = White sub-group.
25994 Patients from 192 Participants were included in the Race = Other sub-group.
19142 Patients from 151 Participants were included in the Ethnicity = Hispanic sub-group.
526816 Patients from 887 Participants were included in the Ethnicity = Non-Hispanic sub-group.

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** "Postoperative mediastinitis carries a very high hospital mortality and is also associated with reduced long-term survival [3]. This complication invariably involves an additional operation, a prolonged hospitalization, a significant toll in clinical resources, and dramatically increased costs. Anyone who has provided care for a patient with mediastinitis also knows well the emotional cost not only for the patient but also for the family, the nursing staff, and the surgeons. Truly one of the most devastating infections in all of surgery, this dreaded complication influences the perioperative management strategy of virtually all cardiothoracic surgeons."

Reference:
Edwards FH, Engelman RM, Houck P, Shahian DM, Bridges CR; Society of Thoracic Surgeons. The Society of Thoracic Surgeons Practice Guideline Series: Antibiotic Prophylaxis in Cardiac Surgery, Part I: Duration. Ann Thorac Surg. 2006 Jan;81(1):397-404. No abstract available. PMID: 16368422

The incidence of deep sternal infections (mediastinitis) associated with cardiac surgery ranges between 0.25% and 4% [1]. The incidence of postoperative mediastinitis can be decrease by assuring that "patients aged 18 years and older undergoing cardiac surgery receive prophylactic antibiotics within one hour of surgical incision or start of procedure if no incision was required (two hours if receiving vancomycin or fluoroquinolone)".

1c.2-3. Type of Evidence: Observational study, Expert opinion, Systematic synthesis of research, Other
Clinical results from approximately 90% of cardiac surgery centers in the US

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
"In patients for whom cefazolin is the appropriate prophylactic antibiotic for cardiac surgery, administration within 60 minutes of the skin incision is indicated (Class I, Level of Evidence A)."

Reference:
Engelman R, Shahian D, Shemin R, Guy TS, Bratzler D, Edwards F, Jacobs M, Fernando H, Bridges C; Workforce on Evidence-Based Medicine, Society of Thoracic Surgeons. The Society of Thoracic Surgeons practice guideline series: Antibiotic prophylaxis in cardiac surgery, part II: Antibiotic choice. Ann Thorac Surg. 2007 Apr;83(4):1569-76. Review. No abstract available. PMID: 17383396

"In patients for whom vancomycin is an appropriate prophylactic antibiotic for cardiac surgery, a dose of 1 to 1.5 g or a weight-adjusted dose of 15 mg/kg administered intravenously slowly over 1 hour, with completion within 1 hour of the skin incision, is recommended (Class I, Level of Evidence A)."

Reference:
Engelman R, Shahian D, Shemin R, Guy TS, Bratzler D, Edwards F, Jacobs M, Fernando H, Bridges C; Workforce on Evidence-Based Medicine, Society of Thoracic Surgeons. The Society of Thoracic Surgeons practice guideline series: Antibiotic prophylaxis in cardiac surgery, part II: Antibiotic choice. Ann Thorac

1c
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P☐
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N☐

Surg. 2007 Apr;83(4):1569-76. Review. No abstract available. PMID: 17383396

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom*):
n/a

1c.6 Method for rating evidence: n/a

1c.7 Summary of Controversy/Contradictory Evidence: n/a

1c.8 Citations for Evidence (*other than guidelines*):

1. Edwards FH, Engelman RM, Houck P, Shahian DM, Bridges CR; Society of Thoracic Surgeons. The Society of Thoracic Surgeons Practice Guideline Series: Antibiotic Prophylaxis in Cardiac Surgery, Part I: Duration. Ann Thorac Surg. 2006 Jan;81(1):397-404. No abstract available. PMID: 16368422
2. Engelman R, Shahian D, Shemin R, Guy TS, Bratzler D, Edwards F, Jacobs M, Fernando H, Bridges C; Workforce on Evidence-Based Medicine, Society of Thoracic Surgeons. The Society of Thoracic Surgeons practice guideline series: Antibiotic prophylaxis in cardiac surgery, part II: Antibiotic choice. Ann Thorac Surg. 2007 Apr;83(4):1569-76. Review. No abstract available. PMID: 17383396
3. Braxton JH, Marrin CAS, McGrath PD, et al. 10-year follow-up of patients with and without mediastinitis. Sem Thorac Cardiovasc Surg 2004;16:70–6.
4. Demmy TL, Park SB, Liebler GA, et al. Recent experience with major sternal wound complications. Ann Thorac Surg 1990;49:458–62.
5. Tang GHL, Maganti M, Weisel RD, Borger MA. Prevention and management of deep sternal wound infection. Sem Thorac Cardiovasc Surg 2004;16:62–9.
6. American Society of Health-System Pharmacists. ASHP Therapeutic Guidelines on Antimicrobial Prophylaxis in Surgery; March 23, 2004. Available at www.ashp.org. Last accessed April 20, 2004.
7. Centers for Disease Control and Prevention (CDC) National Nosocomial Infections Surveillance (NNIS) System. National nosocomial infections surveillance (NNIS) system report, data summary from January 1992 to June 2003, issued August 2003. Am J Infect Control. 2003;31:481-498.
8. Classen DC, Evans RS, Pestotnik SL, Horn SD, Menlove RL, Burke JP. The timing of prophylactic administration of antibiotics and the risk of surgical-wound infection. N Engl J Med. 1992;326(5):281-286.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number*):
n/a

1c.10 Clinical Practice Guideline Citation: n/a
1c.11 National Guideline Clearinghouse or other URL: n/a

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom*):
n/a

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*:
n/a

1c.14 Rationale for using this guideline over others:
n/a

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about	**Eval**

the quality of care when implemented. (evaluation criteria)	Rating
2a. MEASURE SPECIFICATIONS	
S.1 Do you have a web page where current detailed measure specifications can be obtained? **S.2 If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*)**:** Number of patients undergoing cardiac surgery patients who received prophylactic antibiotics within one hour of surgical incision or start of procedure if no incision was required (two hours if vancomycin or fluoroquinolone) **2a.2 Numerator Time Window** (*The time period in which cases are eligible for inclusion in the numerator*)**:** Within one hour of surgical incision or start of procedure if no incision was required (two hours if vancomycin or fluoroquinolone) Rationale: 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. **2a.3 Numerator Details** (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*)**:** Number of cardiac surgery procedures in which timing of appropriate antibiotic administration [AbxTiming (STS Adult Cardiac Surgery Database Version 2.73)] is marked "yes"	
2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured*)**:** Number of patients undergoing cardiac surgery **2a.5 Target population gender:** Female, Male **2a.6 Target population age range:** 18 and older **2a.7 Denominator Time Window** (*The time period in which cases are eligible for inclusion in the denominator*)**:** 12 months **2a.8 Denominator Details** (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions*)**:** 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]	**2a-specs** C☐ P☐ M☐ N☐
2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population*)**:** Cases are removed from the denominator if the patient had a documented contraindication or rationale for not administering antibiotic in medical record.	

Other 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 were receiving antibiotics more than 24 hours prior to surgery
- Patients who were receiving antibiotics within 24 hours prior to arrival

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

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
Timing of appropriate antibiotic administration (AbxTiming) is marked "Exclusion"

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
N/A

2a.12-13 Risk Adjustment Type: No risk adjustment necessary

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
N/A

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
N/A

2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:**
Two-sided 95% binomial confidence intervals; a confidence interval is calculated for each database participant. If the overall STS database result falls within the participant's 95% binomial confidence interval, the participant's performance is considered not significantly different from the overall database result. If the overall STS database result falls to the right of the participant's 95% binomial confidence interval, then the participant's performance is considered significantly lower than the overall database results. If the overall STS database result falls to the left of the participant's 95% binomial confidence interval, then the participant's performance is considered significantly higher than the overall database results.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
N/A

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested***)**
Registry data

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
STS Adult Cardiac Surgery Database – Version 2.73

2a.26-28 Data source/data collection instrument reference web page URL or attachment: URL Data Collection Form
http://www.sts.org/sites/default/files/documents/STSAdultCVDataCollectionForm2_73_Annotated.pdf

2a.29-31 Data dictionary/code table web page URL or attachment: URL
http://www.sts.org/sites/default/files/documents/STSAdultCVDataSpecificationsV2_73.pdf

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and*

tested)
Clinicians: Group, Facility/Agency, Population: national, Population: regional/network, Population: states, Population: counties or cities

2a.36-37 **Care Settings (***Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 **Clinical Services** (*Healthcare services being measured, check all that apply*)
Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 **Data/sample** *(description of data/sample and size)*: STS Adult Cardiac Surgery Database - Compared results between two proximate time periods: January 2008-December 2008 and January 2009-December 2009.

2b.2 **Analytic Method** *(type of reliability & rationale, method for testing)*:
Compared results between two proximate time periods: January 2008-December 2008 and January 2009-December 2009. Excluded from analysis are participants that did not submit results for both time periods. As database participants can change their underlying care processes at any time, we would not expect perfect correlation between two sets of results from even proximate time periods.

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

2b
C☐
P☐
M☐
N☐

2c. Validity testing

2c.1 **Data/sample** *(description of data/sample and size)*: STS Adult Cardiac Surgery Database

Audits conducted in 2010, all cases performed in 2009; N = 40 randomly selected sites participating in the STS Adult Cardiac Surgery Database

2c.2 **Analytic Method** *(type of validity & rationale, method for testing)*:
Participating sites are randomly selected for participation in STS Adult Cardiac Surgery Database Audit, which is designed to evaluate the accuracy, consistency, and comprehensiveness of data collection and ultimately validate the integrity of the data contained in the database. The Iowa Foundation for Medical Care (IFMC), the quality improvement organization for Iowa and Illinois, has conducted audits on behalf of STS since 2006.

Each year, the IFMC conducts audits at randomly selected sites throughout the country and tracks the individual agreement rates by variable and by year. More specifically, for each site, agreement rates are calculated for 73 individual elements. In addition, aggregate agreement rates for each element, variable category (e.g., pre-operative risk factors, previous interventions, etc), and overall for all categories are calculated for all sites. While this is not region specific, it is data point specific and comparison agreement rates confirm the improvement over time as well as the consistency.

2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:

2c
C☐
P☐
M☐
N☐

2d. Exclusions Justified

2d.1 **Summary of Evidence supporting exclusion(s):**

2d.2 **Citations for Evidence:**

2d
C☐
P☐
M☐
N☐
NA☐

2d.3 Data/sample *(description of data/sample and size)*: Immediately prior to this NQF measure endorsement maintenance period, stewardship of this measure was transferred to STS. Exclusions could not be captured using the previous version of the STS Database (STS Adult Cardiac Surgery Database Version 2.61).

Released in December 2010, STS Adult Cardiac Surgery Database Version 2.73, which is designed to address changes in technology and practice, allow for easier identification of devices, and permit improved capture of preoperative risk factors, operative information and postoperative evaluation, has the capability of capturing exclusions data for this measure. Therefore, during the next NQF endorsement maintenance period, scheduled to take place in the year 2013, STS will be able to provide data on exclusions. STS Adult Cardiac Surgery Database Version 2.73 will be implemented for all cases with a surgery date of 7/1/2011 or later.

2d.4 Analytic Method *(type analysis & rationale)*:

2d.5 Testing Results *(e.g., frequency, variability, sensitivity analyses)*:

2e. Risk Adjustment for Outcomes/ Resource Use Measures

2e.1 Data/sample *(description of data/sample and size)*: n/a

2e.2 Analytic Method *(type of risk adjustment, analysis, & rationale)*:

2e.3 Testing Results *(risk model performance metrics)*:

2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:

2e
C☐
P☐
M☐
N☐
NA☐

2f. Identification of Meaningful Differences in Performance

2f.1 Data/sample from Testing or Current Use *(description of data/sample and size)*: 786 STS Adult Cardiac Surgery Database Participants who had at least 100 eligible cases for the measure and reported data to STS for all 12 months; January 1, 2009-December 31, 2009

2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance *(type of analysis & rationale)*:
Two-sided 95% binomial confidence intervals; a confidence interval is calculated for each database participant. If the overall STS database result falls within the participant's 95% binomial confidence interval, the participant's performance is considered not significantly different from the overall database result. If the overall STS database result falls to the right of the participant's 95% binomial confidence interval, then the participant's performance is considered significantly lower than the overall database results. If the overall STS database result falls to the left of the participant's 95% binomial confidence interval, then the participant's performance is considered significantly higher than the overall database results.

2f.3 Provide 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)*:
Please see attachment

2f
C☐
P☐
M☐
N☐

2g. Comparability of Multiple Data Sources/Methods

2g.1 Data/sample *(description of data/sample and size)*: n/a

2g.2 Analytic Method *(type of analysis & rationale)*:

2g
C☐
P☐
M☐
N☐
NA☐

2g.3 **Testing Results** *(e.g., correlation statistics, comparison of rankings)*:	
2h. Disparities in Care 2h.1 **If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: n/a 2h.2 **If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	***2*** C☐ P☐ M☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information 3a.1 **Current Use:** In use 3a.2 **Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*): Currently being considered for NQF endorsement, the STS CABG Composite Score is a multidimensional performance measure comprised of four domains consisting of 11 individual NQF-endorsed cardiac surgery metrics: (1) Operative Care--use of the internal mammary artery; (2) Perioperative Medical Care (use of preoperative beta blockade; discharge beta blockade, antiplatelet agents, and lipid-lowering agents—an "all-or-none" measure); (3) Risk-adjusted Operative Mortality; and (4) Risk-Adjusted Postoperative Morbidity (occurrence of postoperative stroke, renal failure, prolonged ventilation, re-exploration, or deep sternal wound infection--an "any-or-none" measure). Composite star ratings are presented on the STS website, www.sts.org/publicreporting and in the health section of the Consumers Union website, www.ConsumerReportsHealth.org. There are approximately 330 STS Adult Cardiac Surgery Database Participants who voluntarily participate in the Consumer's Union public reporting initiative. In addition, approximately 352 STS Adult Cardiac Surgery Database Participants voluntarily take part in STS Public Reporting Online. STS plans to publicly report more measures in the future. There is no definite date yet assigned to this measure; however, STS staff and surgeon leadership have engaged in initial internal STS discussions regarding this matter. 3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years*): CMS Physician Quality Reporting Initiative (PQRI), www.cms.hhs.gov/pqri **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) 3a.4 **Data/sample** *(description of data/sample and size)*: See 3a.6 below 3a.5 **Methods** *(e.g., focus group, survey, QI project)*:	**3a** C☐ P☐ M☐ N☐

3a.6 Results *(qualitative and/or quantitative results and conclusions)*: Please see attached	
3b/3c. Relation to other NQF-endorsed measures **3b.1 NQF # and Title of similar or related measures:** …	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): **3b.2 Are the measure specifications harmonized? If not, why?** N/A; however, data definitions and key elements have been established by a multi-societal writing committee called the "ACCF/AHA Writing Committee to Develop Acute Coronary Syndromes and Coronary Artery Disease Clinical Data Standards" with representatives from each of the following organizations: Agency for Healthcare Research and Quality American College of Cardiology American College of Chest Physicians American College of Emergency Physicians American College of Physicians American College of Preventative Medicine American Heart Association American Medical Association Centers for Disease Control and Prevention Emergency Nurses Association Food and Drug Administration Joint Commission on Accreditation of Healthcare Organizations National Association of Emergency Medical Technicians National Association of EMS Physicians National Heart, Lung, and Blood Institute Preventive Cardiovascular Nurses Association Society for Academic Emergency Medicine Society of Chest Pain Centers and Providers Society of General Internal Medicine Society of Thoracic Surgeons	**3b** C☐ P☐ M☐ N☐ NA☐
3c. Distinctive or Additive Value **3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** n/a **5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:** n/a	**3c** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes	**4a**

4a.1-2 **How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	C☐ P☐ M☐ N☐
4b. Electronic Sources 4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) Yes 4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.**	**4b** C☐ P☐ M☐ N☐
4c. Exclusions 4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No 4c.2 **If yes, provide justification.**	**4c** C☐ P☐ M☐ N☐ NA☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences 4d.1 **Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** This measure may be susceptible to human error (i.e., recording the measure inaccurately or not at all). When data collection on this measure is done through participation in the STS Adult Cardiac Surgery Database, an auditing strategy is in place. Both STS and the Duke Clinical Research Institute have a list of database participants making participation in the STS Adult Cardiac Surgery Database easy to track. Each participant is responsible for the quality and accuracy of the data they submit to the database. The participant agrees to the following quality control measures in the participation agreement: i) Participant hereby warrants that all data submitted for inclusion in the STS National Database will be accurate and complete, and acknowledges that such data may be subject to independent audit. Participant will use its best efforts to address any data or related deficiencies identified by the independent data warehouse service provider and agrees to cooperate with and assist STS and its designees in connection with the performance of any independent audit. ii) Participant warrants that it will take all reasonable steps to avoid the submission of duplicative data for inclusion in the STS National Database, including but not limited to apprising the Director of the STS National Database and the independent data warehouse service provider about any other Participation Agreements in which an individual cardiothoracic surgeon named above or on Schedule A attached hereto (as amended from time to time) is also named. STS audited for these potential problems during testing.	**4d** C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation 4e.1 **Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:**	**4e** C☐ P☐ M☐ N☐

4e.2 Costs to implement the measure (*costs of data collection, fees associated with proprietary measures*)**:** Data Collection: There are no direct costs to collect the data for this measure. Costs to develop the measure included volunteer cardiothoracic surgeon time, STS staff time, and DCRI statistician and project management time. Other fees: STS Adult Cardiac Surgery Database participants (single cardiothoracic surgeons or a group of surgeons) pay annual participant fees of $2,950 or $3,700, depending on whether participants are STS members (or whether the majority of surgeons in a group are STS members). As a benefit of STS membership, STS members are charged the lesser of the two fees. **4e.3 Evidence for costs:** **4e.4 Business case documentation:**	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**
CONTACT INFORMATION	
Co.1 Measure Steward (Intellectual Property Owner) **Co.1 Organization** Society of Thoracic Surgeons, 633 North Saint Clair Street, Suite 2320, Chicago, Illinois, 60611 **Co.2 Point of Contact** Jane, Han, MSW, jhan@sts.org, 312-202-5856-	
Measure Developer If different from Measure Steward **Co.3 Organization** Society of Thoracic Surgeons, 633 North Saint Clair Street, Suite 2320, Chicago, Illinois, 60611 **Co.4 Point of Contact** Jane, Han, MSW, jhan@sts.org, 312-202-5856-	
Co.5 Submitter If different from Measure Steward POC Jane, Han, MSW, jhan@sts.org, 312-202-5856-, Society of Thoracic Surgeons	
Co.6 Additional organizations that sponsored/participated in measure development	
ADDITIONAL INFORMATION	
Workgroup/Expert Panel involved in measure development **Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**	

Members of the STS Task Force on Quality Initiatives provide clinical expertise as needed. The STS Workforce on National Databases meets at the STS Annual Meeting and reviews the measures on a yearly basis. Changes or updates to the measure will be at the recommendation of the Workforce.
Ad.2 If adapted, provide name of original measure: **Ad.3-5 If adapted, provide original specifications URL or attachment**
Measure Developer/Steward Updates and Ongoing Maintenance **Ad.6 Year the measure was first released:** 2004 **Ad.7 Month and Year of most recent revision:** 12, 2010 **Ad.8 What is your frequency for review/update of this measure?** annually **Ad.9 When is the next scheduled review/update for this measure?** 2011
Ad.10 Copyright statement/disclaimers:
Ad.11 -13 Additional Information web page URL or attachment: Attachment 0125 Sections 1b.2, 1b.4, 2b.3, 2f.3, 3a.6.pdf
Date of Submission (*MM/DD/YY*)**:** 03/28/2011

1b.2. Summary of Measure Results Demonstrating Performance Gap *(Descriptive statistics for performance results for this measure - distribution of scores for measured entities by quartile/decile, mean, median, SD, min, max, etc.)*

Measurement	*Timing of Antibiotic Administration for Cardiac Surgery Patients*
N	786
Mean	98.0%
1st	83.2%
5th	93.2%
10th	95.2%
25th	97.7%
Median	99.2%
75th	99.9%
90th	100.0%
95th	100.0%
99th	100.0%
Outlier	347 (44.1%)
High	259
Low	88

1b.4. Summary of Measure Results on Disparities by Population Group *(Descriptive statistics for performance results for this measure by population group)*

Timing of Antibiotic Administration for Cardiac Surgery Patients		
	Population Group	
	Men	*Women*
Measurement		
N	887	819
Mean	97.6%	97.4%
1st	70.0%	70.9%
5th	91.7%	90.6%
10th	94.7%	93.8%
25th	97.5%	97.1%
Median	98.9%	98.9%
75th	99.7%	100.0%
90th	100.0%	100.0%
95th	100.0%	100.0%
99th	100.0%	100.0%
Outlier	462 (52.1%)	294 (35.9%)
High	366	211
Low	96	83

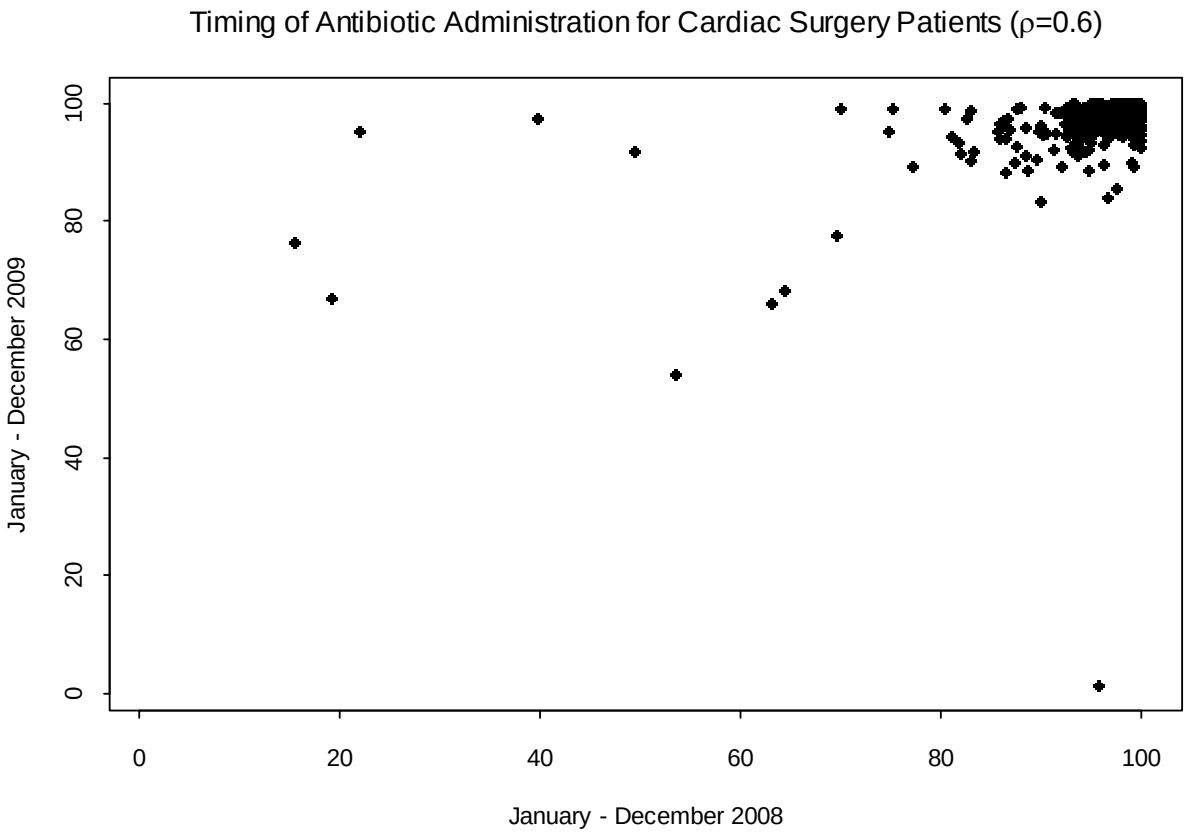
Timing of Antibiotic Administration for Cardiac Surgery Patients			
	Population Group		
	Black	*White*	*Other*
Measurement			
N	231	881	192
Mean	97.2%	97.6%	96.3%
1st	71.1%	69.2%	34.3%
5th	87.0%	91.8%	86.9%
10th	93.7%	94.2%	90.2%
25th	97.3%	97.4%	96.7%
Median	98.7%	98.9%	98.5%
75th	100.0%	99.7%	100.0%
90th	100.0%	100.0%	100.0%
95th	100.0%	100.0%	100.0%
99th	100.0%	100.0%	100.0%

Timing of Antibiotic Administration for Cardiac Surgery Patients			
	Population Group		
	Black	*White*	*Other*
Measurement			
Outlier	52 (22.5%)	532 (60.4%)	57 (29.7%)
High	29	424	35
Low	23	108	22

	Timing of Antibiotic Administration for Cardiac Surgery Patients	
	Population Group	
	Hispanic	*Non-Hispanic*
Measurement		
N	151	887
Mean	96.6%	97.6%
1st	48.6%	69.4%
5th	89.6%	91.5%
10th	92.8%	94.2%
25th	96.3%	97.4%
Median	98.6%	98.9%
75th	100.0%	99.7%
90th	100.0%	100.0%
95th	100.0%	100.0%
99th	100.0%	100.0%
Outlier	34 (22.5%)	546 (61.6%)
High	25	436
Low	9	110

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

Testing results: $\rho = 0.60$



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)*

Results below are from January 1, 2009-December 31, 2009. The sample contains 786 STS Adult Cardiac Surgery Database Participants who had at least 100 eligible cases for the measure and reported data to STS for all 12 months.

Measurement	*Timing of Antibiotic Administration for Cardiac Surgery Patients*
N	786
Mean	98.0%
1st	83.2%
5th	93.2%
10th	95.2%
25th	97.7%
Median	99.2%
75th	99.9%
90th	100.0%
95th	100.0%
99th	100.0%
Outlier†	347 (44.1%)
High	259
Low	88

†Represents the number of participants that are outliers according to two-sided 95% binomial confidence interval.

3a.6. Results *(Qualitative or quantitative results and conclusions)*

Although formal testing of interpretability has not been performed, this measure has been used and reported for STS Adult Cardiac Surgery database participants since 2007. Current report presentation and interpretation manuals are presented below. These materials are updated as needed based upon feedback from database participants.

1) Report Overview and Interpretation Manual:

The NQF Measures Report

a. Organization

This report section is separated into three areas corresponding to: 1) NQF volume measures, 2) NQF process measures, and 3) NQF outcomes measures, in that order. The header at the top of each page references the report section for that page. Each NQF measure is presented on a single row in the section. Tabular data are on the left-hand side of each page and a standard graphic representation is shown on the right-hand side.

b. Statistical Calculation and Details – NQF Measures

Time period: This report section contains information on the individual STS participant and overall STS performance for the most recent 12 months for volume, process and CABG outcomes measures and the most recent 60 months for Valve and Valve + CABG outcomes. The 5 years (60 months) of performance for outcomes involving Valve procedures is necessary due to smaller sample sizes.

Volume Measures: The NQF report provides average annual case volumes data for three surgery categories: i) Isolated CABG, ii) Valve without CABG, and iii) combined CABG + Valve. Definitions of the three surgery categories are provided in Table 2 of this NQF Report Overview. For each type of surgery, the participant's annualized volume is calculated as:

$$\text{Participant Annualized Volume} = 12 \times (\#\text{ of surgeries}) / (\#\text{ of months})$$

where (# of surgeries) denotes the number of surgeries of the specified type performed by the participant during the specified time period, and (# of months) is the number of months during the specified time period for which the participant submitted at least one cardiac surgery of any type. The intent of calculating "annualized" volumes is to adjust for participants who participated in the database for fewer months than the time period specified. For participants who participated in the database and submitted cases every month during 2006, the annualized volume for 2006 is simply the total number of cases.

The STS Average Annualized Volume is the average value of all of the participant annualized volumes across the entire population of STS participants. The Participant Percentile indicates the percent of STS participants whose annualized volumes are less than, or equal to, your own. Higher percentiles indicate higher volumes in relation to other STS participant sites. The Distribution of Participant Values shows the range and percentiles of the distribution of participant annualized volumes across all database participants. For example, 90% of participants have annualized volumes less than or equal to the value marked "90th percentile." Confidence intervals are not provided for volume measures, as volume is known with certainty and is not estimated.

Process Measures: The NQF process measures provide data on the frequency of usage of five therapies among subsets of Isolated CABG patients. The therapies are: i) preoperative beta blockade therapy, ii) use of IMA, iii) discharge anti-platelet medication, iv) discharge beta blockade therapy, and v) discharge anti-lipid medication. The patient population for each measure differs, in accordance with the NQF specifications (see Table 2 of this NQF Report Overview for details). The number of Eligible

Procedures is the number of cases performed by the participant during the specified time period who meet the eligibility requirements to be included in the calculations when summarizing the participant's data. ***Beginning with the 2008 Harvest 3 report (covering the procedure time period through 6/30/2008), STS implementation of NQF medication process measures using data version 2.61 excludes records for which the medication was contraindicated/not indicated from the eligible population.*** The main summary statistic, Participant Usage, is the percent of eligible Isolated CABG cases during the specified time period for which the patient received the specified therapy. The Overall STS Usage is the percent of all eligible patients in the entire STS population during the specified time period who received the specified therapy. ***In calculating these percentages, missing data are treated as a "No", emphasizing the importance of having complete data in these fields***.

The Participant Percentile indicates the percent of STS participants who applied the therapy in their respective populations less frequently than or as frequently as did your institution. The Distribution of Participant Values shows the range and percentiles of the distribution of participant usage across all participants in the database. For example, 90% of participants use the therapy less frequently than the amount indicated by the "90th percentile". A bar identified as "Participant" indicates the point estimate and limits of a 95% Confidence Interval (CI) for the participant's usage of therapy. The underlying parameter being estimated is the long-run usage rate that would be observed in a large sample of patients. The 95% CI indicates the range of usage rates that are consistent with the data in light of sampling variability.

Outcomes Measures: The NQF outcomes data provide risk-adjusted analyses of mortality and morbidity for Isolated CABG surgery as well as risk-adjusted operative mortality for Isolated AVR, Isolated MVR, AVR+CABG, and MVR+CABG. The main summary statistic provided is the Participant's Estimated Odds Ratio (OR) based on a hierarchical logistic regression analysis. The OR measures the impact that a participant's performance level has on a patient's probability of experiencing an adverse outcome. The interpretation is similar to that of an O/E ratio (see the Risk-Adjusted Results: Overview portion of the General Report Overview for details on STS risk adjustment). An OR greater than 1.0 implies that the participant increases a patient's risk of experiencing the outcome, relative to an "average" STS participant. An OR less than 1.0 implies that the participant decreases a patient's risk of experiencing the outcome, relative to an "average" STS participant. Each measure is calculated among patients undergoing surgery of the type specified during the time period specified who additionally meet certain eligibility requirements. The column labeled Eligible Procedures indicates the number of patients who met the inclusion criteria to be included in the analysis for the indicated measure. The Participant Percentile is the percent of STS participants who have an estimated OR that is greater than or equal to your estimated OR. Note that this is different than performance percentiles for process measures, where the percentile indicates the percentage of STS participants with performance that is *less than* the specified number. This simply reflects the fact that high process compliance is desirable, whereas a high OR is undesirable.

The Observed Participant Rate is the percent of eligible patients who experienced the specified outcome. Unlike the participant estimated OR, the observed participant rate is not risk-adjusted. The estimated OR is the main summary statistic for summarizing the NQF measure in this report.

The Distribution of Participant Values shows the range and percentiles of the distribution of estimated Odds Ratios across all STS participants. For example, 90% of STS participants have an OR greater than the value indicated by the "90th percentile." The line that extends to the left and right of the Participant Value indicates the lower and upper limits of a 95% Confidence Interval (CI) surrounding the participant's estimated OR.

c. Technical Notes

Calculation of Percentiles for the Distribution of Participant Values: The graph provided for each measure contains information about the distribution of the value of the measure across all STS

participants, namely the minimum, maximum, 10th percentile, 50th percentile, and 90th percentile. The "X^{th}" percentile, denoted P_x, is loosely defined as the number having the property that X% of the participant values are less than P_x, and (100 – X)% of the participant values are greater than P_x. **For process measures, participants with greater than 5% missing data were excluded when calculating percentiles of the STS distribution and do not have a calculated participant percentile**. For participants having less than 5% missing data on a process measure, the missing values on the process measure were converted to "No" before calculating percentiles. For outcomes measures, all participants submitting at least one eligible case were included when calculating percentiles of the STS distribution. Missing data on outcomes variables were treated as "No."

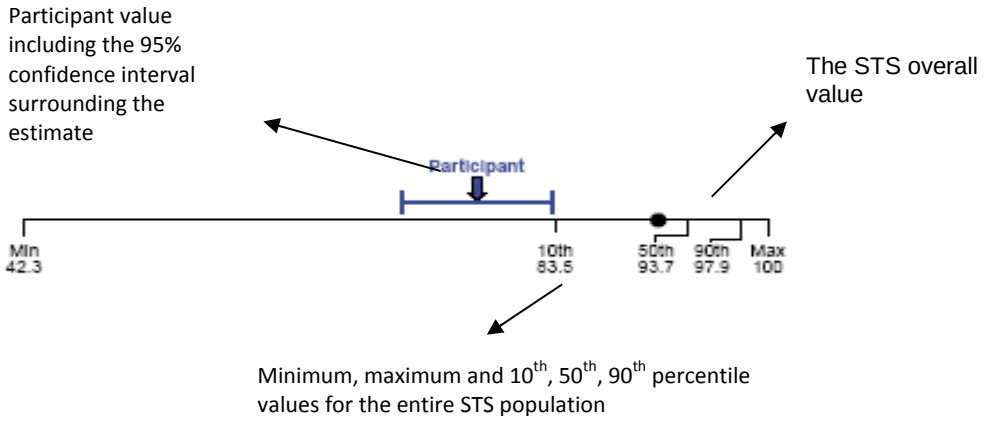
NQF/STS Results Comparison: Participants may see some differences between summaries of their data provided in the NQF section of the report and summaries of their data reported elsewhere in the STS report. These differences are due to subtle variations in variable definitions, patient inclusion and exclusion criteria, and rules for handling missing data in the NQF section versus the rest of the report. Definitions used in the NQF report were designed to match current NQF specifications as closely as possible. It is expected that these differences will eventually disappear as the NQF measures are refined. Some important differences are:

Case Volumes – The NQF report section presents "annualized" volumes. These are case volumes that have been adjusted for the number of months that a participant was an active contributor to the database. Elsewhere in the STS report, total case volumes are presented without adjustment for the length of participation.

Eligible Cases - The NQF report also presents the number of "eligible cases" for each measure. Separate inclusion criteria are applied to each measure, and these inclusion criteria do not always match the definitions used elsewhere in the STS report. Please refer to the footnotes in each section for specific details.

Interpretation Manual

In addition to the statistics provided for each of the STS Composite Quality Domains and NQF measures, a figure representing the distribution of values for the entire STS population is provided.



The figure allows participants to quickly judge their performance relative to the overall STS. The scale of the figure is set up such that the right side of the distribution represents the most favorable performance and the left side represents the least favorable performance (Note that in some cases smaller numbers will be on the left; in other instances, smaller numbers will be on the right. For example, for the Pre-operative Beta Blockade Therapy measure, the far left side of the distribution will contain the *lowest* percentage Beta Blockade Therapy for an STS participant – this corresponds to least

favorable performance. Alternatively, for the Operative Mortality Measure, the far left side of the distribution will contain the *highest* Estimated Odds Ratio – this also corresponds to least favorable performance). If a participant's value for a given measure is to the left of the STS overall value, the participant is performing worse on that measure than the overall STS. Conversely, if the participant's value for a given measure is located to the right of the overall STS value, the participant is performing better than the overall STS.

NOTE! Care should be given to reading these figures. In some instances, the various percentiles presented cluster very close together in the data. In such cases, the label for the percentile is not necessarily located immediately at the point on the distribution where the percentile occurs. An example of this is apparent in the figure above: The 50th percentile corresponds to a value of 93.7 and looks to align fairly closely with the STS overall value as represented by the large black dot. However, the expandable figure marking actually points to a place somewhere to the right of the STS overall value for the 50th percentile marking. So the STS overall value would be some amount less than 93.7.

Also, please note that in some cases, small sample sizes preclude valid comparisons between the participant and the STS overall. Such instances are clearly noted in the report output.

a. NQF Measures Interpretation Example

Sample CABG Operative Mortality results – tabular and figure representation.

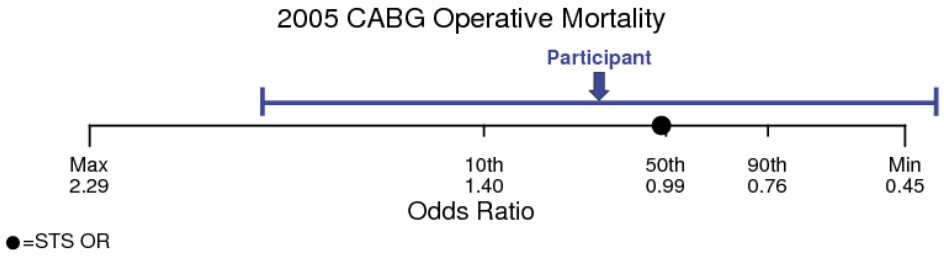
NQF Measure	Eligible Procedures	Participant Estimated OR	Participant Percentile	Participant Observed Rate
2005 CABG Operative Mortality	74	1.14	26.3	5.4%

Eligible Procedures: 74 patients met the inclusion criteria for the indicated measure.

Participant Estimated OR (Odds Ratio): The main summary statistic measuring the impact that a participant's performance has on a patient's probability of experiencing an adverse outcome has a value of 1.14 indicating worse than expected performance.

Participant Percentile: 26.3% of STS participants had an estimated OR greater than or equal to your estimated OR. In other words, 26.3% had the same or worse performance.

Participant Observed Rate: 5.4% of the 74 eligible patients experienced the specified outcome.



The highest OR among all STS participants = 2.29
The lowest OR among all STS participants = 0.45
The STS average OR is 1.00

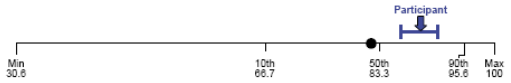
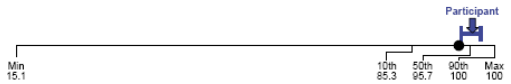
The 95% confidence interval for the participant's OR spans from <0.45 to ~1.90

2) Sample page from section of the report that contains NQF measure results:

NQF Measures
Process Measures

Participant 99999
STS Period Ending 12/31/2008

Duke Clinical Research Institute
DUKE UNIVERSITY MEDICAL CENTER

NQF Measure	Eligible Procedures	Participant Usage (95% CI)	Participant Percentile	Overall STS Usage	Distribution of Participant Values ● = Overall STS Usage
Jan 2008 - Dec 2008 Preoperative Beta Blockade Therapy[1]	541	89.3% (86.4 , 91.8)	69.9	82.1%	
Jan 2008 - Dec 2008 Use of IMA[2]	536	96.5% (94.5 , 97.9)	63.3	94.2%	
Jan 2008 - Dec 2008 Discharge Anti-Platelet Medication[3]	536	98.7% (97.3 , 99.5)	68.7	96.1%	
Jan 2008 - Dec 2008 Discharge Beta Blockade Therapy[4]	538	96.1% (94.1 , 97.6)	53.4	93.7%	
Jan 2008 - Dec 2008 Discharge Anti-Lipid Treatment[4]	535	91.8% (89.1 , 94.0)	40.7	91.4%	

[1]Excludes v2.61 contranindicated / not indicated records.
[2]Excludes patients with prior CABG surgery
[3]Anti-platelet use includes Aspirin and ADP Inhibitors, and excludes in-hospital mortalities. Excludes v2.61 contranindicated / not indicated records.
[4]Excludes in-hospital mortalities. Excludes v2.61 contranindicated / not indicated records.

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0126 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Selection of Antibiotic Prophylaxis for Cardiac Surgery Patients
De.2 **Brief description of measure:** Percent of patients aged 18 years and older undergoing cardiac surgery who received preoperative prophylactic antibiotics recommended for the operation.
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure**
De.4 **National Priority Partners Priority Area:** Safety De.5 **IOM Quality Domain:** Safety De.6 **Consumer Care Need:** Getting better

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission A.4 **Measure Steward Agreement attached:** STS Measure Steward Agreement. Fully Executed-634267331191150098.pdf	A Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and	B

update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Frequently performed procedure, Leading cause of morbidity/mortality, High resource use, Severity of illness, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Postoperative mediastinitis is an infection of the mediastinal space after cardiac surgery. The incidence of deep sternal infections (mediastinitis) associated with cardiac surgery ranges between 0.25% and 4% [1]. The incidence of postoperative mediastinitis can be decrease by assuring that "patients aged 18 years and older undergoing cardiac surgery receive preoperative prophylactic antibiotics recommended for the operation". Reference 1 below states: "Postoperative mediastinitis carries a very high hospital mortality [3-5] and is also associated with reduced long-term survival [3]. This complication invariably involves an additional operation, a prolonged hospitalization, a significant toll in clinical resources, and dramatically increased costs. Anyone who has provided care for a patient with mediastinitis also knows well the emotional cost not only for the patient but also for the family, the nursing staff, and the surgeons. Truly one of the most devastating infections in all of surgery, this dreaded complication influences the perioperative management strategy of virtually all cardiothoracic surgeons." 1a.4 **Citations for Evidence of High Impact:** 1. Edwards FH, Engelman RM, Houck P, Shahian DM, Bridges	**1a** C☐ P☐ M☐ N☐

CR; Society of Thoracic Surgeons. The Society of Thoracic Surgeons Practice Guideline Series: Antibiotic Prophylaxis in Cardiac Surgery, Part I: Duration. Ann Thorac Surg. 2006 Jan;81(1):397-404. No abstract available. PMID: 16368422
2. Engelman R, Shahian D, Shemin R, Guy TS, Bratzler D, Edwards F, Jacobs M, Fernando H, Bridges C; Workforce on Evidence-Based Medicine, Society of Thoracic Surgeons. The Society of Thoracic Surgeons practice guideline series: Antibiotic prophylaxis in cardiac surgery, part II: Antibiotic choice. Ann Thorac Surg. 2007 Apr;83(4):1569-76. Review. No abstract available. PMID: 17383396
3. Braxton JH, Marrin CAS, McGrath PD, et al. 10-year follow-up of patients with and without mediastinitis. Sem Thorac Cardiovasc Surg 2004;16:70–6.
4. Demmy TL, Park SB, Liebler GA, et al. Recent experience with major sternal wound complications. Ann Thorac Surg 1990;49:458–62.
5. Tang GHL, Maganti M, Weisel RD, Borger MA. Prevention and management of deep sternal wound infection. Sem Thorac Cardiovasc Surg 2004;16:62–9.
6. American Society of Health-System Pharmacists. ASHP Therapeutic Guidelines on Antimicrobial Prophylaxis in Surgery; March 23, 2004. Available at www. ashp.org. Last accessed April 20, 2004.
7. CDC NNIS System. National nosocomial infections surveillance (NNIS) system report, data summary from January 1992 to June 2003, issued August 2003. Am J Infect Control. 2003;31:481-498.
8. Classen DC, Evans RS, Pestotnik SL, Horn SD, Menlove RL, Burke JP. The timing of prophylactic administration of antibiotics and the risk of surgical-wound infection. N Engl J Med 1992;326(5):281-286.

1b. Opportunity for Improvement

1b.1 Benefits (improvements in quality) envisioned by use of this measure: The incidence of deep sternal infections (mediastinitis) associated with cardiac surgery ranges between 0.25% and 4% [1]. The incidence of postoperative mediastinitis can be decrease by assuring that "patients aged 18 years and older undergoing cardiac surgery receive preoperative prophylactic antibiotics recommended for the operation".

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
Please see attachment and below:

Measurement	Selection of Antibiotic Administration for Cardiac Surgery Patients
N	786
Mean	92.0%
1st	4.2%
5th	61.3%
10th	80.6%
25th	89.8%
Median	98.7%
75th	100.0%
90th	100.0%
95th	100.0%
99th	100.0%
Outlier	678 (86.3%)
High	511
Low	167

1b.3 Citations for data on performance gap:
Dates: January 1, 2009-December 31, 2009

Analysis includes 786 STS Adult Cardiac Surgery Database Participants who had at least 100 eligible cases for the measure and reported data to STS for all 12 months.

1b.4 Summary of Data on disparities by population group:
Please see attachment

1b.5 Citations for data on Disparities:
Analysis includes STS Adult Cardiac Surgery Database Participants that had more than 50 eligible cases in

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2008 and 2009, and reported data for at least 15 months

376873 Patients from 891 Participants were included in the Gender = Male sub-group.
175275 Patients from 820 Participants were included in the Gender = Female sub-group.
29844 Patients from 231 Participants were included in the Race = Black sub-group.
478990 Patients from 885 Participants were included in the Race = White sub-group.
25994 Patients from 192 Participants were included in the Race = Other sub-group.
19294 Patients from 152 Participants were included in the Ethnicity = Hispanic sub-group.
527975 Patients from 890 Participants were included in the Ethnicity = Non-Hispanic sub-group.

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** "Postoperative mediastinitis carries a very high hospital mortality and is also associated with reduced long-term survival [3]. This complication invariably involves an additional operation, a prolonged hospitalization, a significant toll in clinical resources, and dramatically increased costs. Anyone who has provided care for a patient with mediastinitis also knows well the emotional cost not only for the patient but also for the family, the nursing staff, and the surgeons. Truly one of the most devastating infections in all of surgery, this dreaded complication influences the perioperative management strategy of virtually all cardiothoracic surgeons."

Reference:
Edwards FH, Engelman RM, Houck P, Shahian DM, Bridges CR; Society of Thoracic Surgeons. The Society of Thoracic Surgeons Practice Guideline Series: Antibiotic Prophylaxis in Cardiac Surgery, Part I: Duration. Ann Thorac Surg. 2006 Jan;81(1):397-404. No abstract available. PMID: 16368422

The incidence of deep sternal infections (mediastinitis) associated with cardiac surgery ranges between 0.25% and 4% [1].]. The incidence of postoperative mediastinitis can be decrease by assuring that "patients aged 18 years and older undergoing cardiac surgery receive preoperative prophylactic antibiotics recommended for the operation".

1c.2-3. Type of Evidence: Observational study, Expert opinion, Systematic synthesis of research, Other Clinical results from approximately 90% of cardiac surgery centers in the US

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
"CLASS I RECOMMENDATION. A -lactam antibiotic is indicated as a single antibiotic of choice for standard cardiac surgical prophylaxis in populations that do not have a high incidence of methicillin-resistant Staphylococcus aureus (MRSA [Level of Evidence A; see Appendix])."

Reference:
Engelman R, Shahian D, Shemin R, Guy TS, Bratzler D, Edwards F, Jacobs M, Fernando H, Bridges C; Workforce on Evidence-Based Medicine, Society of Thoracic Surgeons. The Society of Thoracic Surgeons practice guideline series: Antibiotic prophylaxis in cardiac surgery, part II: Antibiotic choice. Ann Thorac Surg. 2007 Apr;83(4):1569-76. Review. No abstract available. PMID: 17383396

CLASS IIA RECOMMENDATION. Based on availability and cost, it is reasonable to use cefazolin (a first-generation agent) as the cephalosporin for standard cardiac surgical prophylaxis in view of the fact that most randomized trials could not discriminate between cephalosporins (Level of Evidence B).

Reference:
Engelman R, Shahian D, Shemin R, Guy TS, Bratzler D, Edwards F, Jacobs M, Fernando H, Bridges C; Workforce on Evidence-Based Medicine, Society of Thoracic Surgeons. The Society of Thoracic Surgeons practice guideline series: Antibiotic prophylaxis in cardiac surgery, part II: Antibiotic choice. Ann Thorac Surg. 2007 Apr;83(4):1569-76. Review. No abstract available. PMID: 17383396

In patients with a history of an immunoglobulin-E (IgE)–mediated reaction to penicillin or cephalosporin

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(anaphylaxis, hives, or angioedema), vancomycin should be given preoperatively and for no more than 48 hours. Alternatively, skin testing may be performed in these patients and, if negative, a cephalosporin regimen administered (Class I, Level of Evidence A).

Reference:
Engelman R, Shahian D, Shemin R, Guy TS, Bratzler D, Edwards F, Jacobs M, Fernando H, Bridges C; Workforce on Evidence-Based Medicine, Society of Thoracic Surgeons. The Society of Thoracic Surgeons practice guideline series: Antibiotic prophylaxis in cardiac surgery, part II: Antibiotic choice. Ann Thorac Surg. 2007 Apr;83(4):1569-76. Review. No abstract available. PMID: 17383396

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**

1c.6 Method for rating evidence:

1c.7 Summary of Controversy/Contradictory Evidence:

1c.8 Citations for Evidence (*other than guidelines***):**
1. Edwards FH, Engelman RM, Houck P, Shahian DM, Bridges CR; Society of Thoracic Surgeons. The Society of Thoracic Surgeons Practice Guideline Series: Antibiotic Prophylaxis in Cardiac Surgery, Part I: Duration. Ann Thorac Surg. 2006 Jan;81(1):397-404. No abstract available. PMID: 16368422
2. Engelman R, Shahian D, Shemin R, Guy TS, Bratzler D, Edwards F, Jacobs M, Fernando H, Bridges C; Workforce on Evidence-Based Medicine, Society of Thoracic Surgeons. The Society of Thoracic Surgeons practice guideline series: Antibiotic prophylaxis in cardiac surgery, part II: Antibiotic choice. Ann Thorac Surg. 2007 Apr;83(4):1569-76. Review. No abstract available. PMID: 17383396
3. Braxton JH, Marrin CAS, McGrath PD, et al. 10-year follow-up of patients with and without mediastinitis. Sem Thorac Cardiovasc Surg 2004;16:70–6.
4. Demmy TL, Park SB, Liebler GA, et al. Recent experience with major sternal wound complications. Ann Thorac Surg 1990;49:458–62.
5. Tang GHL, Maganti M, Weisel RD, Borger MA. Prevention and management of deep sternal wound infection. Sem Thorac Cardiovasc Surg 2004;16:62–9.
6. American Society of Health-System Pharmacists. ASHP Therapeutic Guidelines on Antimicrobial Prophylaxis in Surgery; March 23, 2004. Available at www. ashp.org. Last accessed April 20, 2004.
7. CDC NNIS System. National nosocomial infections surveillance (NNIS) system report, data summary from January 1992 to June 2003, issued August 2003. Am J Infect Control. 2003;31:481-498.
8. Classen DC, Evans RS, Pestotnik SL, Horn SD, Menlove RL, Burke JP. The timing of prophylactic administration of antibiotics and the risk of surgical-wound infection. N Engl J Med 1992;326(5):281-286.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number***):**
n/a

1c.10 Clinical Practice Guideline Citation: n/a
1c.11 National Guideline Clearinghouse or other URL: n/a

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom***):**
n/a

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*:
n/a

1c.14 Rationale for using this guideline over others:
n/a

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**

Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 Do you have a web page where current detailed measure specifications can be obtained? **S.2 If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome***):** 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. **2a.2 Numerator Time Window (***The time period in which cases are eligible for inclusion in the numerator***):** **2a.3 Numerator Details (***All information required to collect/calculate the numerator, including all codes, logic, and definitions***):** Number of cardiac surgery procedures in which appropriate antibiotic selection [AbxSelect (STS Adult Cardiac Surgery Database Version 2.73)] is marked "yes"	
2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured***):** Number of patients undergoing cardiac surgery **2a.5 Target population gender:** Female, Male **2a.6 Target population age range:** 18 and older **2a.7 Denominator Time Window (***The time period in which cases are eligible for inclusion in the denominator***):** 12 months **2a.8 Denominator Details (***All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):** 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]	**2a-specs** **C☐** **P☐** **M☐** **N☐**

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):** 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"

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
See above

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
N/A

2a.12-13 Risk Adjustment Type: No risk adjustment necessary

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
N/A

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
N/A

2a.22 Describe the method for discriminating performance *(e.g., significance testing)*:
Two-sided 95% binomial confidence intervals; a confidence interval is calculated for each database participant. If the overall STS database result falls within the participant's 95% binomial confidence interval, the participant's performance is considered not significantly different from the overall database result. If the overall STS database result falls to the right of the participant's 95% binomial confidence interval, then the participant's performance is considered significantly lower than the overall database results. If the overall STS database result falls to the left of the participant's 95% binomial confidence interval, then the participant's performance is considered significantly higher than the overall database results.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
N/A

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Registry data

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
STS Adult Cardiac Surgery Database – Version 2.73

2a.26-28 Data source/data collection instrument reference web page URL or attachment: URL Data Collection Form

http://www.sts.org/sites/default/files/documents/STSAdultCVDataCollectionForm2_73_Annotated.pdf

2a.29-31 **Data dictionary/code table web page URL or attachment:** URL
http://www.sts.org/sites/default/files/documents/STSAdultCVDataSpecificationsV2_73.pdf

2a.32-35 **Level of Measurement/Analysis** (*Check the level(s) for which the measure is specified and tested)*
Clinicians: Group, Facility/Agency, Population: national, Population: regional/network, Population: states, Population: counties or cities

2a.36-37 **Care Settings (***Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 **Clinical Services** (*Healthcare services being measured, check all that apply*)
Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 **Data/sample** *(description of data/sample and size)*: STS Adult Cardiac Surgery Database - Compared results between two proximate time periods: January 2008-December 2008 and January 2009-December 2009.

2b.2 **Analytic Method** *(type of reliability & rationale, method for testing)*:
Compared results between two proximate time periods: January 2008-December 2008 and January 2009-December 2009. Excluded from analysis are participants that did not submit results for both time periods. As database participants can change their underlying care processes at any time, we would not expect perfect correlation between two sets of results from even proximate time periods.

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

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2c. Validity testing

2c.1 **Data/sample** *(description of data/sample and size)*: STS Adult Cardiac Surgery Database

Audits conducted in 2010, all cases performed in 2009; N = 40 randomly selected sites participating in the STS Adult Cardiac Surgery Database

2c.2 **Analytic Method** *(type of validity & rationale, method for testing)*:
Participating sites are randomly selected for participation in STS Adult Cardiac Surgery Database Audit, which is designed to evaluate the accuracy, consistency, and comprehensiveness of data collection and ultimately validate the integrity of the data contained in the database. The Iowa Foundation for Medical Care (IFMC), the quality improvement organization for Iowa and Illinois, has conducted audits on behalf of STS since 2006.

Each year, the IFMC conducts audits at randomly selected sites throughout the country and tracks the individual agreement rates by variable and by year. More specifically, for each site, agreement rates are calculated for 73 individual elements. In addition, aggregate agreement rates for each element, variable category (e.g., pre-operative risk factors, previous interventions, etc), and overall for all categories are calculated for all sites. While this is not region specific, it is data point specific and comparison agreement rates confirm the improvement over time as well as the consistency.

2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:

2c
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N☐

2d. Exclusions Justified — **2d**

2d.1 Summary of Evidence supporting exclusion(s):

2d.2 Citations for Evidence:

2d.3 Data/sample *(description of data/sample and size)*: Immediately prior to this NQF measure endorsement maintenance period, stewardship of this measure was transferred to STS. Exclusions could not be captured using the previous version of the STS Database (STS Adult Cardiac Surgery Database Version 2.61).

Released in December 2010, STS Adult Cardiac Surgery Database Version 2.73, which is designed to address changes in technology and practice, allow for easier identification of devices, and permit improved capture of preoperative risk factors, operative information and postoperative evaluation, has the capability of capturing exclusions data for this measure. Therefore, during the next NQF endorsement maintenance period, scheduled to take place in the year 2013, STS will be able to provide data on exclusions. STS Adult Cardiac Surgery Database Version 2.73 will be implemented for all cases with a surgery date of 7/1/2011 or later.

2d.4 Analytic Method *(type analysis & rationale)*:

2d.5 Testing Results *(e.g., frequency, variability, sensitivity analyses)*:

C☐ P☐ M☐ N☐ NA☐

2e. Risk Adjustment for Outcomes/ Resource Use Measures

2e.1 Data/sample *(description of data/sample and size)*: n/a

2e.2 Analytic Method *(type of risk adjustment, analysis, & rationale)*:

2e.3 Testing Results *(risk model performance metrics)*:

2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:

2e
C☐ P☐ M☐ N☐ NA☐

2f. Identification of Meaningful Differences in Performance

2f.1 Data/sample from Testing or Current Use *(description of data/sample and size)*: 786 STS Adult Cardiac Surgery Database Participants who had at least 100 eligible cases for the measure and reported data to STS for all 12 months; January 1, 2009-December 31, 2009

2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance *(type of analysis & rationale)*:
Two-sided 95% binomial confidence intervals; a confidence interval is calculated for each database participant. If the overall STS database result falls within the participant's 95% binomial confidence interval, the participant's performance is considered not significantly different from the overall database result. If the overall STS database result falls to the right of the participant's 95% binomial confidence interval, then the participant's performance is considered significantly lower than the overall database results. If the overall STS database result falls to the left of the participant's 95% binomial confidence interval, then the participant's performance is considered significantly higher than the overall database results.

2f.3 Provide 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)*:
Please see attachment

2f
C☐ P☐ M☐ N☐

2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: n/a **2g.2 Analytic Method** *(type of analysis & rationale)*: **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*:	**2g** C☐ P☐ M☐ N☐ NA☐
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: n/a **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	***2*** C☐ P☐ M☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** In use **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*): Currently being considered for NQF endorsement, the STS CABG Composite Score is a multidimensional performance measure comprised of four domains consisting of 11 individual NQF-endorsed cardiac surgery metrics: (1) Operative Care--use of the internal mammary artery; (2) Perioperative Medical Care (use of preoperative beta blockade; discharge beta blockade, antiplatelet agents, and lipid-lowering agents—an "all-or-none" measure); (3) Risk-adjusted Operative Mortality; and (4) Risk-Adjusted Postoperative Morbidity (occurrence of postoperative stroke, renal failure, prolonged ventilation, re-exploration, or deep sternal wound infection--an "any-or-none" measure). Composite star ratings are presented on the STS website, www.sts.org/publicreporting and in the health section of the Consumers Union website, www.ConsumerReportsHealth.org. There are approximately 330 STS Adult Cardiac Surgery Database Participants who voluntarily participate in the Consumer's Union public reporting initiative. In addition, approximately 352 STS Adult Cardiac Surgery Database Participants voluntarily take part in STS Public Reporting Online. STS plans to publicly report more measures in the future. There is no definite date yet assigned to this measure; however, STS staff and surgeon leadership have engaged in initial internal STS discussions regarding this matter. **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** CMS Physician Quality Reporting Initiative (PQRI), www.cms.hhs.gov/pqri **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users*	**3a** C☐ P☐ M☐ N☐

for public reporting and quality improvement) 3a.4 **Data/sample** *(description of data/sample and size)*: See 3a.6 below 3a.5 **Methods** *(e.g., focus group, survey, QI project)*: 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)*: Please see attachment	
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:** …	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?** N/A; however, data definitions and key elements have been established by a multi-societal writing committee called the "ACCF/AHA Writing Committee to Develop Acute Coronary Syndromes and Coronary Artery Disease Clinical Data Standards" with representatives from each of the following organizations: Agency for Healthcare Research and Quality American College of Cardiology American College of Chest Physicians American College of Emergency Physicians American College of Physicians American College of Preventative Medicine American Heart Association American Medical Association Centers for Disease Control and Prevention Emergency Nurses Association Food and Drug Administration Joint Commission on Accreditation of Healthcare Organizations National Association of Emergency Medical Technicians National Association of EMS Physicians National Heart, Lung, and Blood Institute Preventive Cardiovascular Nurses Association Society for Academic Emergency Medicine Society of Chest Pain Centers and Providers Society of General Internal Medicine Society of Thoracic Surgeons	**3b** C☐ P☐ M☐ N☐ NA☐
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** n/a 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:** n/a	**3c** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐

	N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes 4a.1-2 **How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	4a C☐ P☐ M☐ N☐
4b. Electronic Sources 4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) Yes 4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.**	4b C☐ P☐ M☐ N☐
4c. Exclusions 4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No 4c.2 **If yes, provide justification.**	4c C☐ P☐ M☐ N☐ NA☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences 4d.1 **Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** This measure may be susceptible to human error (i.e., recording the measure inaccurately or not at all). When data collection on this measure is done through participation in the STS Adult Cardiac Surgery Database, an auditing strategy is in place. Both STS and the Duke Clinical Research Institute have a list of database participants making participation in the STS Adult Cardiac Surgery Database easy to track. Each participant is responsible for the quality and accuracy of the data they submit to the database. The participant agrees to the following quality control measures in the participation agreement: i) Participant hereby warrants that all data submitted for inclusion in the STS National Database will be accurate and complete, and acknowledges that such data may be subject to independent audit. Participant will use its best efforts to address any data or related deficiencies identified by the independent data warehouse service provider and agrees to cooperate with and assist STS and its designees in connection with the performance of any independent audit. ii) Participant warrants that it will take all reasonable steps to avoid the submission of duplicative data for inclusion in the STS National Database, including but not limited to apprising the Director of the STS National Database and the independent data warehouse service provider about any other Participation Agreements in which an individual cardiothoracic surgeon named above or on Schedule A attached hereto (as amended from time to time) is also named. STS audited for these potential problems during testing.	4d C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation	4e

4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues: **4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** Data Collection: There are no direct costs to collect the data for this measure. Costs to develop the measure included volunteer cardiothoracic surgeon time, STS staff time, and DCRI statistician and project management time. Other fees: STS Adult Cardiac Surgery Database participants (single cardiothoracic surgeons or a group of surgeons) pay annual participant fees of $2,950 or $3,700, depending on whether participants are STS members (or whether the majority of surgeons in a group are STS members). As a benefit of STS membership, STS members are charged the lesser of the two fees. **4e.3 Evidence for costs:** **4e.4 Business case documentation:**	C☐ P☐ M☐ N☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** C☐ P☐ M☐ N☐
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited** ☐
Steering Committee: Do you recommend for endorsement? **Comments:**	Y☐ N☐ A☐
CONTACT INFORMATION	
Co.1 Measure Steward (Intellectual Property Owner) **Co.1 Organization** Society of Thoracic Surgeons, 633 North Saint Clair Street, Suite 2320, Chicago, Illinois, 60611 **Co.2 Point of Contact** Jane, Han, MSW, jhan@sts.org, 312-202-5856-	
Measure Developer If different from Measure Steward **Co.3 Organization** Society of Thoracic Surgeons, 633 North Saint Clair Street, Suite 2320, Chicago, Illinois, 60611 **Co.4 Point of Contact** Jane, Han, MSW, jhan@sts.org, 312-202-5856-	
Co.5 Submitter If different from Measure Steward POC Jane, Han, MSW, jhan@sts.org, 312-202-5856-, Society of Thoracic Surgeons	
Co.6 Additional organizations that sponsored/participated in measure development	

ADDITIONAL INFORMATION
Workgroup/Expert Panel involved in measure development **Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.** Members of the STS Task Force on Quality Initiatives provide clinical expertise as needed. The STS Workforce on National Databases meets at the STS Annual Meeting and reviews the measures on a yearly basis. Changes or updates to the measure will be at the recommendation of the Workforce.
Ad.2 If adapted, provide name of original measure: **Ad.3-5 If adapted, provide original specifications URL or attachment**
Measure Developer/Steward Updates and Ongoing Maintenance **Ad.6 Year the measure was first released:** 2004 **Ad.7 Month and Year of most recent revision:** 12, 2010 **Ad.8 What is your frequency for review/update of this measure?** annually **Ad.9 When is the next scheduled review/update for this measure?** 2011
Ad.10 Copyright statement/disclaimers:
Ad.11 -13 Additional Information web page URL or attachment: Attachment 0126 Sections 1b.2, 1b.4, 2b.3, 2f.3, 3a.6.pdf
Date of Submission (*MM/DD/YY*)**:** 03/28/2011

1b.2. Summary of Measure Results Demonstrating Performance Gap *(Descriptive statistics for performance results for this measure - distribution of scores for measured entities by quartile/decile, mean, median, SD, min, max, etc.)*

Measurement	*Selection of Antibiotic Administration for Cardiac Surgery Patients*
N	786
Mean	92.0%
1st	4.2%
5th	61.3%
10th	80.6%
25th	89.8%
Median	98.7%
75th	100.0%
90th	100.0%
95th	100.0%
99th	100.0%
Outlier	678 (86.3%)
High	511
Low	167

1b.4. Summary of Measure Results on Disparities by Population Group *(Descriptive statistics for performance results for this measure by population group)*

	Selection of Antibiotic Administration for Cardiac Surgery Patients	
	Population Group	
	Men	*Women*
Measurement		
N	891	820
Mean	94.0%	91.9%
1st	30.9%	35.4%
5th	71.6%	63.1%
10th	86.0%	78.5%
25th	93.1%	89.0%
Median	98.6%	98.2%
75th	99.8%	100.0%
90th	100.0%	100.0%
95th	100.0%	100.0%
99th	100.0%	100.0%
Outlier	723 (81.1%)	668 (81.5%)
High	568	504
Low	155	164

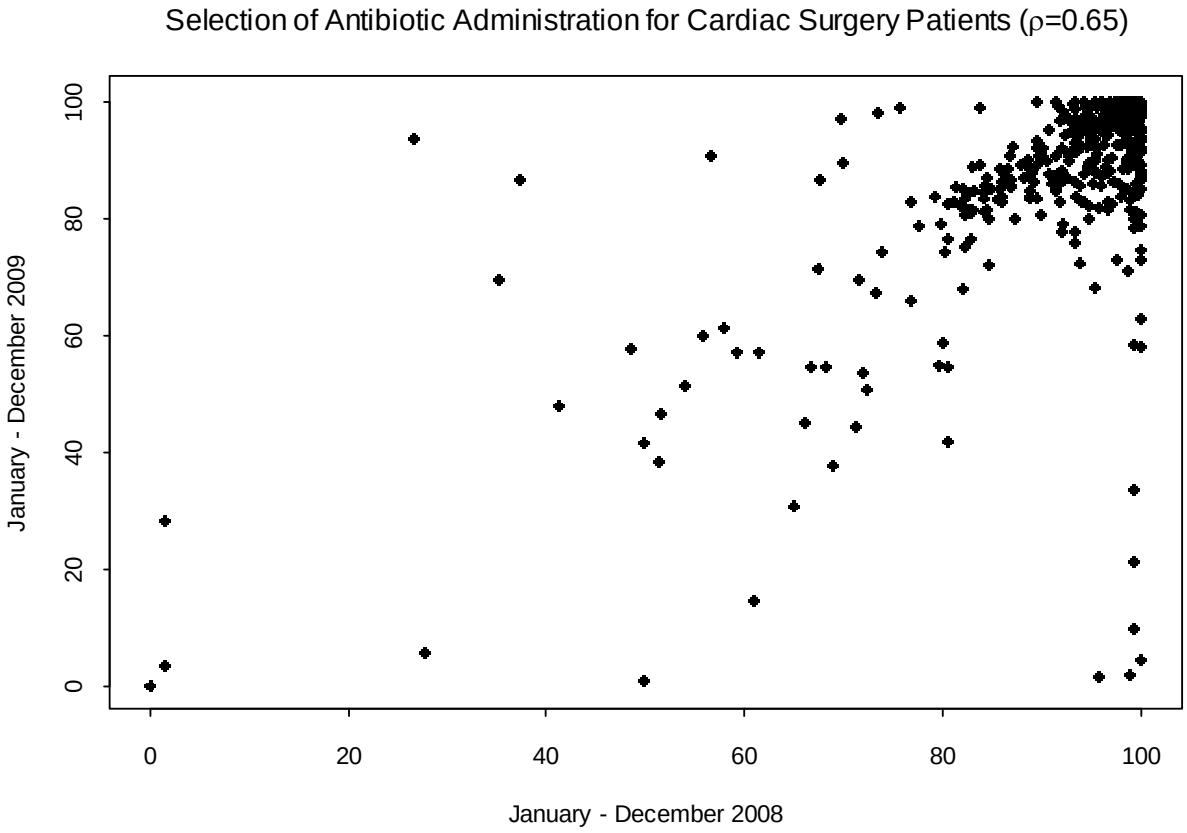
	Selection of Antibiotic Administration for Cardiac Surgery Patients		
	Population Group		
	Black	*White*	*Other*
Measurement			
N	231	885	192
Mean	91.9%	93.2%	94.2%
1st	22.8%	33.3%	19.7%
5th	57.4%	68.0%	76.3%
10th	81.3%	83.1%	85.8%
25th	90.2%	91.6%	94.3%
Median	97.7%	98.6%	98.5%
75th	100.0%	99.7%	100.0%
90th	100.0%	100.0%	100.0%
95th	100.0%	100.0%	100.0%
99th	100.0%	100.0%	100.0%

	Selection of Antibiotic Administration for Cardiac Surgery Patients		
	Population Group		
	Black	*White*	*Other*
Measurement			
Outlier	152 (65.8%)	759 (85.8%)	107 (55.7%)
High	118	578	78
Low	34	181	29

	Selection of Antibiotic Administration for Cardiac Surgery Patients	
	Population Group	
	Hispanic	*Non-Hispanic*
Measurement		
N	152	890
Mean	94.9%	93.3%
1st	50.0%	32.8%
5th	81.0%	68.7%
10th	85.6%	82.9%
25th	94.6%	91.6%
Median	98.6%	98.6%
75th	100.0%	99.7%
90th	100.0%	100.0%
95th	100.0%	100.0%
99th	100.0%	100.0%
Outlier	72 (47.4%)	773 (86.9%)
High	49	591
Low	23	182

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

Testing results: $\rho = 0.65$



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)*

Results below are from January 1, 2009-December 31, 2009. Sample contains 786 STS Adult Cardiac Surgery Database Participants who had at least 100 eligible cases for the measure and reported data to STS for all 12 months.

Measurement	*Selection of Antibiotic Administration for Cardiac Surgery Patients*
N	786
Mean	92.0%
1st	4.2%
5th	61.3%
10th	80.6%
25th	89.8%
Median	98.7%
75th	100.0%
90th	100.0%
95th	100.0%
99th	100.0%
Outlier†	678 (86.3%)
High	511
Low	167

†Represents the number of participants that are outliers according to two-sided 95% binomial confidence interval.

3a.6. Results *(Qualitative or quantitative results and conclusions)*

Although formal testing of interpretability has not been performed, this measure has been used and reported for STS Adult Cardiac Surgery database participants since 2007. Current report presentation and interpretation manuals are presented below. These materials are updated as needed based upon feedback from database participants.

1) Report Overview and Interpretation Manual:

The NQF Measures Report

a. Organization

This report section is separated into three areas corresponding to: 1) NQF volume measures, 2) NQF process measures, and 3) NQF outcomes measures, in that order. The header at the top of each page references the report section for that page. Each NQF measure is presented on a single row in the section. Tabular data are on the left-hand side of each page and a standard graphic representation is shown on the right-hand side.

b. Statistical Calculation and Details – NQF Measures

Time period: This report section contains information on the individual STS participant and overall STS performance for the most recent 12 months for volume, process and CABG outcomes measures and the most recent 60 months for Valve and Valve + CABG outcomes. The 5 years (60 months) of performance for outcomes involving Valve procedures is necessary due to smaller sample sizes.

Volume Measures: The NQF report provides average annual case volumes data for three surgery categories: i) Isolated CABG, ii) Valve without CABG, and iii) combined CABG + Valve. Definitions of the three surgery categories are provided in Table 2 of this NQF Report Overview. For each type of surgery, the participant's annualized volume is calculated as:

$$\text{Participant Annualized Volume} = 12 \times (\#\text{ of surgeries}) / (\#\text{ of months})$$

where (# of surgeries) denotes the number of surgeries of the specified type performed by the participant during the specified time period, and (# of months) is the number of months during the specified time period for which the participant submitted at least one cardiac surgery of any type. The intent of calculating "annualized" volumes is to adjust for participants who participated in the database for fewer months than the time period specified. For participants who participated in the database and submitted cases every month during 2006, the annualized volume for 2006 is simply the total number of cases.

The STS Average Annualized Volume is the average value of all of the participant annualized volumes across the entire population of STS participants. The Participant Percentile indicates the percent of STS participants whose annualized volumes are less than, or equal to, your own. Higher percentiles indicate higher volumes in relation to other STS participant sites. The Distribution of Participant Values shows the range and percentiles of the distribution of participant annualized volumes across all database participants. For example, 90% of participants have annualized volumes less than or equal to the value marked "90th percentile." Confidence intervals are not provided for volume measures, as volume is known with certainty and is not estimated.

Process Measures: The NQF process measures provide data on the frequency of usage of five therapies among subsets of Isolated CABG patients. The therapies are: i) preoperative beta blockade therapy, ii) use of IMA, iii) discharge anti-platelet medication, iv) discharge beta blockade therapy, and v) discharge anti-lipid medication. The patient population for each measure differs, in accordance with the NQF specifications (see Table 2 of this NQF Report Overview for details). The number of Eligible

Procedures is the number of cases performed by the participant during the specified time period who meet the eligibility requirements to be included in the calculations when summarizing the participant's data. ***Beginning with the 2008 Harvest 3 report (covering the procedure time period through 6/30/2008), STS implementation of NQF medication process measures using data version 2.61 excludes records for which the medication was contraindicated/not indicated from the eligible population.*** The main summary statistic, Participant Usage, is the percent of eligible Isolated CABG cases during the specified time period for which the patient received the specified therapy. The Overall STS Usage is the percent of all eligible patients in the entire STS population during the specified time period who received the specified therapy. ***In calculating these percentages, missing data are treated as a "No", emphasizing the importance of having complete data in these fields***.

The Participant Percentile indicates the percent of STS participants who applied the therapy in their respective populations less frequently than or as frequently as did your institution. The Distribution of Participant Values shows the range and percentiles of the distribution of participant usage across all participants in the database. For example, 90% of participants use the therapy less frequently than the amount indicated by the "90th percentile". A bar identified as "Participant" indicates the point estimate and limits of a 95% Confidence Interval (CI) for the participant's usage of therapy. The underlying parameter being estimated is the long-run usage rate that would be observed in a large sample of patients. The 95% CI indicates the range of usage rates that are consistent with the data in light of sampling variability.

Outcomes Measures: The NQF outcomes data provide risk-adjusted analyses of mortality and morbidity for Isolated CABG surgery as well as risk-adjusted operative mortality for Isolated AVR, Isolated MVR, AVR+CABG, and MVR+CABG. The main summary statistic provided is the Participant's Estimated Odds Ratio (OR) based on a hierarchical logistic regression analysis. The OR measures the impact that a participant's performance level has on a patient's probability of experiencing an adverse outcome. The interpretation is similar to that of an O/E ratio (see the Risk-Adjusted Results: Overview portion of the General Report Overview for details on STS risk adjustment). An OR greater than 1.0 implies that the participant increases a patient's risk of experiencing the outcome, relative to an "average" STS participant. An OR less than 1.0 implies that the participant decreases a patient's risk of experiencing the outcome, relative to an "average" STS participant. Each measure is calculated among patients undergoing surgery of the type specified during the time period specified who additionally meet certain eligibility requirements. The column labeled Eligible Procedures indicates the number of patients who met the inclusion criteria to be included in the analysis for the indicated measure. The Participant Percentile is the percent of STS participants who have an estimated OR that is greater than or equal to your estimated OR. Note that this is different than performance percentiles for process measures, where the percentile indicates the percentage of STS participants with performance that is *less than* the specified number. This simply reflects the fact that high process compliance is desirable, whereas a high OR is undesirable.

The Observed Participant Rate is the percent of eligible patients who experienced the specified outcome. Unlike the participant estimated OR, the observed participant rate is not risk-adjusted. The estimated OR is the main summary statistic for summarizing the NQF measure in this report.

The Distribution of Participant Values shows the range and percentiles of the distribution of estimated Odds Ratios across all STS participants. For example, 90% of STS participants have an OR greater than the value indicated by the "90th percentile." The line that extends to the left and right of the Participant Value indicates the lower and upper limits of a 95% Confidence Interval (CI) surrounding the participant's estimated OR.

c. Technical Notes

Calculation of Percentiles for the Distribution of Participant Values: The graph provided for each measure contains information about the distribution of the value of the measure across all STS

participants, namely the minimum, maximum, 10th percentile, 50th percentile, and 90th percentile. The "X^{th}" percentile, denoted P_x, is loosely defined as the number having the property that X% of the participant values are less than P_x, and (100 – X)% of the participant values are greater than P_x. **For process measures, participants with greater than 5% missing data were excluded when calculating percentiles of the STS distribution and do not have a calculated participant percentile**. For participants having less than 5% missing data on a process measure, the missing values on the process measure were converted to "No" before calculating percentiles. For outcomes measures, all participants submitting at least one eligible case were included when calculating percentiles of the STS distribution. Missing data on outcomes variables were treated as "No."

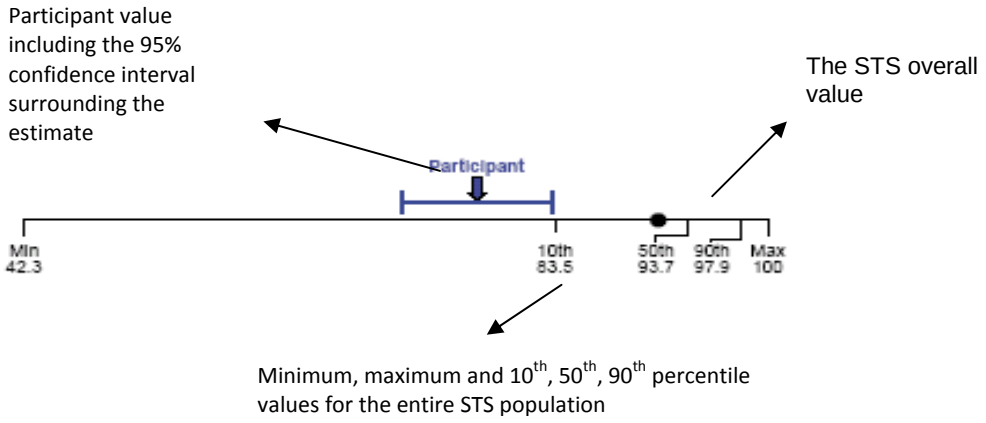
NQF/STS Results Comparison: Participants may see some differences between summaries of their data provided in the NQF section of the report and summaries of their data reported elsewhere in the STS report. These differences are due to subtle variations in variable definitions, patient inclusion and exclusion criteria, and rules for handling missing data in the NQF section versus the rest of the report. Definitions used in the NQF report were designed to match current NQF specifications as closely as possible. It is expected that these differences will eventually disappear as the NQF measures are refined. Some important differences are:

Case Volumes – The NQF report section presents "annualized" volumes. These are case volumes that have been adjusted for the number of months that a participant was an active contributor to the database. Elsewhere in the STS report, total case volumes are presented without adjustment for the length of participation.

Eligible Cases - The NQF report also presents the number of "eligible cases" for each measure. Separate inclusion criteria are applied to each measure, and these inclusion criteria do not always match the definitions used elsewhere in the STS report. Please refer to the footnotes in each section for specific details.

Interpretation Manual

In addition to the statistics provided for each of the STS Composite Quality Domains and NQF measures, a figure representing the distribution of values for the entire STS population is provided.



The figure allows participants to quickly judge their performance relative to the overall STS. The scale of the figure is set up such that the right side of the distribution represents the most favorable performance and the left side represents the least favorable performance (Note that in some cases smaller numbers will be on the left; in other instances, smaller numbers will be on the right. For example, for the Pre-operative Beta Blockade Therapy measure, the far left side of the distribution will contain the *lowest* percentage Beta Blockade Therapy for an STS participant – this corresponds to least

favorable performance. Alternatively, for the Operative Mortality Measure, the far left side of the distribution will contain the *highest* Estimated Odds Ratio – this also corresponds to least favorable performance). If a participant's value for a given measure is to the left of the STS overall value, the participant is performing worse on that measure than the overall STS. Conversely, if the participant's value for a given measure is located to the right of the overall STS value, the participant is performing better than the overall STS.

NOTE! Care should be given to reading these figures. In some instances, the various percentiles presented cluster very close together in the data. In such cases, the label for the percentile is not necessarily located immediately at the point on the distribution where the percentile occurs. An example of this is apparent in the figure above: The 50th percentile corresponds to a value of 93.7 and looks to align fairly closely with the STS overall value as represented by the large black dot. However, the expandable figure marking actually points to a place somewhere to the right of the STS overall value for the 50th percentile marking. So the STS overall value would be some amount less than 93.7.

Also, please note that in some cases, small sample sizes preclude valid comparisons between the participant and the STS overall. Such instances are clearly noted in the report output.

a. NQF Measures Interpretation Example

Sample CABG Operative Mortality results – tabular and figure representation.

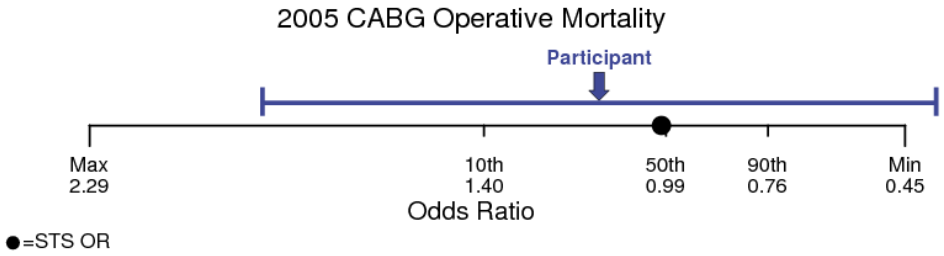
NQF Measure	Eligible Procedures	Participant Estimated OR	Participant Percentile	Participant Observed Rate
2005 CABG Operative Mortality	74	1.14	26.3	5.4%

Eligible Procedures: 74 patients met the inclusion criteria for the indicated measure.

Participant Estimated OR (Odds Ratio): The main summary statistic measuring the impact that a participant's performance has on a patient's probability of experiencing an adverse outcome has a value of 1.14 indicating worse than expected performance.

Participant Percentile: 26.3% of STS participants had an estimated OR greater than or equal to your estimated OR. In other words, 26.3% had the same or worse performance.

Participant Observed Rate: 5.4% of the 74 eligible patients experienced the specified outcome.



The highest OR among all STS participants = 2.29
The lowest OR among all STS participants = 0.45
The STS average OR is 1.00

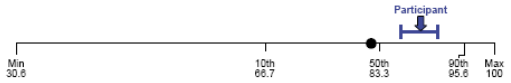
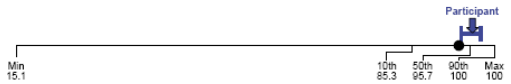
The 95% confidence interval for the participant's OR spans from <0.45 to ~1.90

2) Sample page from section of the report that contains NQF measure results:

NQF Measures
Process Measures

Participant 99999
STS Period Ending 12/31/2008

Duke Clinical Research Institute
DUKE UNIVERSITY MEDICAL CENTER

NQF Measure	Eligible Procedures	Participant Usage (95% CI)	Participant Percentile	Overall STS Usage	Distribution of Participant Values ● = Overall STS Usage
Jan 2008 - Dec 2008 Preoperative Beta Blockade Therapy[1]	541	89.3% (86.4 , 91.8)	69.9	82.1%	
Jan 2008 - Dec 2008 Use of IMA[2]	536	96.5% (94.5 , 97.9)	63.3	94.2%	
Jan 2008 - Dec 2008 Discharge Anti-Platelet Medication[3]	536	98.7% (97.3 , 99.5)	68.7	96.1%	
Jan 2008 - Dec 2008 Discharge Beta Blockade Therapy[4]	538	96.1% (94.1 , 97.6)	53.4	93.7%	
Jan 2008 - Dec 2008 Discharge Anti-Lipid Treatment[4]	535	91.8% (89.1 , 94.0)	40.7	91.4%	

[1]Excludes v2.61 contranindicated / not indicated records.
[2]Excludes patients with prior CABG surgery
[3]Anti-platelet use includes Aspirin and ADP Inhibitors, and excludes in-hospital mortalities. Excludes v2.61 contranindicated / not indicated records.
[4]Excludes in-hospital mortalities. Excludes v2.61 contranindicated / not indicated records.

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0128 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Duration of Antibiotic Prophylaxis for Cardiac Surgery Patients
De.2 **Brief description of measure:** Percent of patients aged 18 years and older undergoing cardiac surgery whose prophylactic antibiotics were discontinued within 48 hours after surgery end time
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure**
De.4 **National Priority Partners Priority Area:** Safety De.5 **IOM Quality Domain:** Safety De.6 **Consumer Care Need:** Getting better

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission A.4 **Measure Steward Agreement attached:** STS Measure Steward Agreement. Fully Executed-634282041063913762.pdf	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and	**B**

update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Frequently performed procedure, Leading cause of morbidity/mortality, High resource use, Severity of illness, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Over 500,000 coronary artery bypass surgeries are performed annually in the United States along with multiple other cardiac surgeries. (1, 2) A devastating complication of cardiac surgery is deep sternal wound infection. The Society of Thoracic Surgeons database reports an incidence of deep sternal wound infection of 0.4% though other studies show the incidence is as high as 4%.(3)Patients with deep sternal wound infection require multiple surgeries to clear the infection, have longer hospital stays, greatly increased costs and increased both early and late mortality (2-4).However, prolonged antibiotic administration has been associated with increased antimicrobial resistance. (5, 6) Therefore optimal duration of prophylactic antibiotic therapy in cardiac surgery is imperative. 1a.4 **Citations for Evidence of High Impact:** 1. 1999. ASHP Therapeutic Guidelines on Antimicrobial Prophylaxis in Surgery. American Society of Health-System Pharmacists. Am J Health Syst Pharm 56: 1839-88 2. Tamayo E, Gualis J, Florez S, Castrodeza J, Bouza JM, Alvarez FJ. 2008. Comparative study of single-dose and 24-hour multiple-dose antibiotic prophylaxis for cardiac surgery. J Thorac Cardiovasc Surg 136: 1522-7 3. Edwards FH, Engelman RM, Houck P, Shahian DM, Bridges CR. 2006. The Society of Thoracic Surgeons Practice Guideline Series: Antibiotic Prophylaxis in Cardiac Surgery, Part I: Duration. Ann Thorac	**1a** C☐ P☐ M☐ N☐

Surg 81: 397-404
4. Engelman R, Shahian D, Shemin R, Guy TS, Bratzler D, Edwards F, Jacobs M, Fernando H, Bridges C. 2007. The Society of Thoracic Surgeons practice guideline series: Antibiotic prophylaxis in cardiac surgery, part II: Antibiotic choice. Ann Thorac Surg 83: 1569-76
5. Gupta A, Hote MP, Choudhury M, Kapil A, Bisoi AK. 2010. Comparison of 48 h and 72 h of prophylactic antibiotic therapy in adult cardiac surgery: a randomized double blind controlled trial. J Antimicrob Chemother 65: 1036-41
6. Harbarth S, Samore MH, Lichtenberg D, Carmeli Y. 2000. Prolonged antibiotic prophylaxis after cardiovascular surgery and its effect on surgical site infections and antimicrobial resistance. Circulation 101: 2916-21

1b. Opportunity for Improvement

1b.1 Benefits (improvements in quality) envisioned by use of this measure: Prevention of postoperative wound infection in cardiac surgery is important especially deep sternal wound infection, which conveys significantly increased mortality.(1, 3) However, there is no evidence that prolonged prophylactic antibiotic administration beyond 48 hours is associated with decreased infection.(1, 3, 5)
Furthermore prolonged prophylactic antibiotic administration beyond 48 hours has been associated with increased development of antimicrobial resistance.(6) This measure will promote using a responsible duration of prophylactic antibiotics.

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
Please see attachment and below:

Measurement	Duration of Prophylaxis for Cardiac Surgery Patients
N	782
Mean	94.6%
1st	0.7%
5th	83.0%
10th	89.9%
25th	95.5%
Median	98.5%
75th	99.5%
90th	100.0%
95th	100.0%
99th	100.0%
Outlier	594 (76.0%)
High	494
Low	100

1b.3 Citations for data on performance gap:
Dates: January 1, 2009-December 31, 2009

Analysis includes 782 STS Adult Cardiac Surgery Database Participants who had at least 100 eligible cases for the measure and reported data to STS for all 12 months.

1b.4 Summary of Data on disparities by population group:
please see attachment

1b.5 Citations for data on Disparities:
Analysis includes STS Adult Cardiac Surgery Database Participants that had more than 50 eligible cases in 2008 and 2009, and reported data for at least 15 months

375408 Patients from 886 Participants were included in the Gender = Male sub-group.
174078 Patients from 814 Participants were included in the Gender = Female sub-group.
29385 Patients from 228 Participants were included in the Race = Black sub-group.
477728 Patients from 881 Participants were included in the Race = White sub-group.

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25906 Patients from 191 Participants were included in the Race = Other sub-group.
19071 Patients from 150 Participants were included in the Ethnicity = Hispanic sub-group.
525854 Patients from 884 Participants were included in the Ethnicity = Non-Hispanic sub-group.

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Because of the devastating nature of deep sternal wound infections, surgeons have had variable approaches to prophylactic antibiotic duration including some surgeons who prefer to continue antibiotics until all drainage tubes are removed.(3) However, two expert panels have found there is no evidence that prolonged prophylactic antibiotic administration reduces infection in cardiac surgery.(1, 3) A recent small randomized trial comparing 48 and 72 hours found no benefit in continuing antibiotics beyond 48 hours.(3) Furthermore, increased antimicrobial resistance was found in another study where antibiotics were continued beyond 48 hours.(6) Therefore, to prevent antimicrobial resistance and unnecessary cost to the health care system prophylactic antibiotics in cardiac surgery patients should be discontinued after 48 hours. (1, 3)

1c.2-3. Type of Evidence: Observational study, Randomized controlled trial, Expert opinion, Systematic synthesis of research, Other Clinical results from approximately 90% of cardiac surgery centers in the US

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
"Optimal Practice: Postoperative prophylactic antibiotics are given for 48 hours or less (class IIa, Level B)"

Reference: Edwards FH, Engelman RM, Houck P, Shahian DM, Bridges CR. 2006. The Society of Thoracic Surgeons Practice Guideline Series: Antibiotic Prophylaxis in Cardiac Surgery, Part I: Duration. Ann Thorac Surg 81: 397-404

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom*)**:**
n/a

1c.6 Method for rating evidence: n/a

1c.7 Summary of Controversy/Contradictory Evidence: n/a

1c.8 Citations for Evidence (*other than guidelines*)**:**
1. 1999. ASHP Therapeutic Guidelines on Antimicrobial Prophylaxis in Surgery. American Society of Health-System Pharmacists. Am J Health Syst Pharm 56: 1839-88
2. Edwards FH, Engelman RM, Houck P, Shahian DM, Bridges CR. 2006. The Society of Thoracic Surgeons Practice Guideline Series: Antibiotic Prophylaxis in Cardiac Surgery, Part I: Duration. Ann Thorac Surg 81: 397-404
3. Tamayo E, Gualis J, Florez S, Castrodeza J, Bouza JM, Alvarez FJ. 2008. Comparative study of single-dose and 24-hour multiple-dose antibiotic prophylaxis for cardiac surgery. J Thorac Cardiovasc Surg 136: 1522-7
4. Engelman R, Shahian D, Shemin R, Guy TS, Bratzler D, Edwards F, Jacobs M, Fernando H, Bridges C. 2007. The Society of Thoracic Surgeons practice guideline series: Antibiotic prophylaxis in cardiac surgery, part II: Antibiotic choice. Ann Thorac Surg 83: 1569-76
5. Gupta A, Hote MP, Choudhury M, Kapil A, Bisoi AK. 2010. Comparison of 48 h and 72 h of prophylactic antibiotic therapy in adult cardiac surgery: a randomized double blind controlled trial. J Antimicrob Chemother 65: 1036-41
6. Harbarth S, Samore MH, Lichtenberg D, Carmeli Y. 2000. Prolonged antibiotic prophylaxis after cardiovascular surgery and its effect on surgical site infections and antimicrobial resistance. Circulation 101: 2916-21

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number*)**:**
N/A

1c.10 Clinical Practice Guideline Citation: n/a

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1c.11 National Guideline Clearinghouse or other URL: n/a **1c.12 Rating of strength of recommendation** (*also provide narrative description of the rating and by whom*)**:** n/a **1c.13 Method for rating strength of recommendation** (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*: n/a **1c.14 Rationale for using this guideline over others:** n/a	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 Do you have a web page where current detailed measure specifications can be obtained? **S.2 If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*)**:** Number of patients undergoing cardiac surgery whose prophylactic antibiotics were discontinued within 48 hours after surgery end time **2a.2 Numerator Time Window** (*The time period in which cases are eligible for inclusion in the numerator*)**:** Within 48 hours after surgery end time **2a.3 Numerator Details** (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*)**:** Number of cardiac surgery procedures in which appropriate antibiotic discontinuation [AbxDisc (STS Adult Cardiac Surgery Database Version 2.73)] is marked "yes"	
2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured*)**:** Number of patients undergoing cardiac surgery **2a.5 Target population gender:** Female, Male **2a.6 Target population age range:** 18 yrs and older **2a.7 Denominator Time Window** (*The time period in which cases are eligible for inclusion in the denominator*)**:** 12 months **2a.8 Denominator Details** (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions*)**:** Number of cardiac surgery procedures;	**2a-specs** **C☐** **P☐** **M☐** **N☐**

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]

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):** 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.

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
AbxDisc is marked "Exclusion"

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**

2a.12-13 Risk Adjustment Type: No risk adjustment necessary

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
n/a

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**

2a.22 Describe the method for discriminating performance *(e.g., significance testing)*:
Two-sided 95% binomial confidence intervals; a confidence interval is calculated for each database participant. If the overall STS database result falls within the participant's 95% binomial confidence interval, the participant's performance is considered not significantly different from the overall database result. If the overall STS database result falls to the right of the participant's 95% binomial confidence interval, then the participant's performance is considered significantly lower than the overall database results. If the overall STS database result falls to the left of the participant's 95% binomial confidence interval, then the participant's performance is considered significantly higher than the overall database results.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Registry data

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.*)**:**
STS Adult Cardiac Surgery Database – Version 2.73

2a.26-28 Data source/data collection instrument reference web page URL or attachment: URL Data Collection Form
http://www.sts.org/sites/default/files/documents/STSAdultCVDataCollectionForm2_73_Annotated.pdf

2a.29-31 Data dictionary/code table web page URL or attachment: URL
http://www.sts.org/sites/default/files/documents/STSAdultCVDataSpecificationsV2_73.pdf

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Clinicians: Group, Facility/Agency, Population: national, Population: regional/network, Population: states, Population: counties or cities

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)***:** STS Adult Cardiac Surgery Database - Compared results between two proximate time periods: January 2008-December 2008 and January 2009-December 2009

2b.2 Analytic Method *(type of reliability & rationale, method for testing)***:**
Compared results between two proximate time periods: January 2008-December 2008 and January 2009-December 2009. Excluded from analysis are participants that did not submit results for both time periods. Because database participants can change their underlying care processes at any time, we would not expect perfect correlation between two sets of results from even proximate time periods.

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

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N ☐

2c. Validity testing

2c.1 Data/sample *(description of data/sample and size)***:** STS Adult Cardiac Surgery Database

Audits conducted in 2010, all cases performed in 2009; N = 40 randomly selected sites participating in the STS Adult Cardiac Surgery Database

2c.2 Analytic Method *(type of validity & rationale, method for testing)***:**
Participating sites are randomly selected for participation in STS Adult Cardiac Surgery Database Audit, which is designed to evaluate the accuracy, consistency, and comprehensiveness of data collection and ultimately validate the integrity of the data contained in the database. The Iowa Foundation for Medical Care (IFMC), the quality improvement organization for Iowa and Illinois, has conducted audits on behalf of STS since 2006.

Each year, the IFMC conducts audits at randomly selected sites throughout the country and tracks the individual agreement rates by variable and by year. More specifically, for each site, agreement rates are

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N ☐

calculated for 73 individual elements. In addition, aggregate agreement rates for each element, variable category (e.g., pre-operative risk factors, previous interventions, etc), and overall for all categories are calculated for all sites. While this is not region specific, it is data point specific and comparison agreement rates confirm the improvement over time as well as the consistency.

2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:

2d. Exclusions Justified

2d.1 **Summary of Evidence supporting exclusion(s):**

2d.2 **Citations for Evidence:**

2d.3 **Data/sample** *(description of data/sample and size)*: Immediately prior to this NQF measure endorsement maintenance period, stewardship of this measure was transferred to STS. Exclusions could not be captured using the previous version of the STS Database (STS Adult Cardiac Surgery Database Version 2.61).

To be released in January 2011, STS Adult Cardiac Surgery Database Version 2.73, which is designed to address changes in technology and practice, allow for easier identification of devices, and permit improved capture of preoperative risk factors, operative information and postoperative evaluation, has the capability of capturing exclusions data for this measure. Therefore, during the next NQF endorsement maintenance period, scheduled to take place in the year 2013, STS will be able to provide data on exclusions. STS Adult Cardiac Surgery Database Version 2.73 will be implemented for all cases with a surgery date of 7/1/2011 or later.

2d.4 **Analytic Method** *(type analysis & rationale)*:

2d.5 **Testing Results** *(e.g., frequency, variability, sensitivity analyses)*:

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NA☐

2e. Risk Adjustment for Outcomes/ Resource Use Measures

2e.1 **Data/sample** *(description of data/sample and size)*: n/a

2e.2 **Analytic Method** *(type of risk adjustment, analysis, & rationale)*:

2e.3 **Testing Results** *(risk model performance metrics)*:

2e.4 **If outcome or resource use measure is not risk adjusted, provide rationale:**

2e
C☐
P☐
M☐
N☐
NA☐

2f. Identification of Meaningful Differences in Performance

2f.1 **Data/sample from Testing or Current Use** *(description of data/sample and size)*: 782 STS Adult Cardiac Surgery Database Participants who had at least 100 eligible cases for the measure and reported data to STS for all 12 months; January 1, 2009-December 31, 2009

2f.2 **Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*:
Two-sided 95% binomial confidence intervals; a confidence interval is calculated for each database participant. If the overall STS database result falls within the participant's 95% binomial confidence interval, the participant's performance is considered not significantly different from the overall database result. If the overall STS database result falls to the right of the participant's 95% binomial confidence

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interval, then the participant's performance is considered significantly lower than the overall database results. If the overall STS database result falls to the left of the participant's 95% binomial confidence interval, then the participant's performance is considered significantly higher than the overall database results. **2f.3 Provide 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)*: Please see attachment	
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: n/a **2g.2 Analytic Method** *(type of analysis & rationale)*: **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*:	**2g** C☐ P☐ M☐ N☐ NA☐
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: n/a **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**	**2h** C☐ P☐ M☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	***2*** C☐ P☐ M☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** In use **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*): Currently being considered for NQF endorsement, the STS CABG Composite Score is a multidimensional performance measure comprised of four domains consisting of 11 individual NQF-endorsed cardiac surgery metrics: (1) Operative Care--use of the internal mammary artery; (2) Perioperative Medical Care (use of preoperative beta blockade; discharge beta blockade, antiplatelet agents, and lipid-lowering agents—an "all-or-none" measure); (3) Risk-adjusted Operative Mortality; and (4) Risk-Adjusted Postoperative Morbidity (occurrence of postoperative stroke, renal failure, prolonged ventilation, re-exploration, or deep sternal wound infection--an "any-or-none" measure). Composite star ratings are presented on the STS website, www.sts.org/publicreporting and in the health section of the Consumers Union website, www.ConsumerReportsHealth.org. There are approximately 330 STS Adult Cardiac Surgery Database Participants who voluntarily participate in the Consumer's Union public reporting initiative. In addition, approximately 352 STS Adult Cardiac Surgery Database Participants voluntarily take part in STS Public Reporting Online. STS plans to publicly report more measures in the future. There is no definite date yet assigned to this	**3a** C☐ P☐ M☐ N☐

measure; however, STS staff and surgeon leadership have engaged in initial internal STS discussions regarding this matter.

3a.3 If used in other programs/initiatives (*If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):**
CMS Physician Quality Reporting Initiative (PQRI), www.cms.hhs.gov/pqri

Testing of Interpretability (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*)
3a.4 Data/sample *(description of data/sample and size)***:** See 3a.6 below

3a.5 Methods *(e.g., focus group, survey, QI project)***:**

3a.6 Results *(qualitative and/or quantitative results and conclusions)***:**
Please see attachment

3b/3c. Relation to other NQF-endorsed measures

3b.1 NQF # and Title of similar or related measures:
...

(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**

3b. Harmonization
If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population):
3b.2 Are the measure specifications harmonized? If not, why?
N/A; however, data definitions and key elements have been established by a multi-societal writing committee called the "ACCF/AHA Writing Committee to Develop Acute Coronary Syndromes and Coronary Artery Disease Clinical Data Standards" with representatives from each of the following organizations:

Agency for Healthcare Research and Quality
American College of Cardiology
American College of Chest Physicians
American College of Emergency Physicians
American College of Physicians
American College of Preventative Medicine
American Heart Association
American Medical Association
Centers for Disease Control and Prevention
Emergency Nurses Association
Food and Drug Administration
Joint Commission on Accreditation of Healthcare Organizations
National Association of Emergency Medical Technicians
National Association of EMS Physicians
National Heart, Lung, and Blood Institute
Preventive Cardiovascular Nurses Association
Society for Academic Emergency Medicine
Society of Chest Pain Centers and Providers
Society of General Internal Medicine
Society of Thoracic Surgeons

3b
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3c. Distinctive or Additive Value
3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:
n/a

5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the

3c
C☐ P☐ M☐ N☐ NA☐

same target population), Describe why it is a more valid or efficient way to measure quality: n/a	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** **C☐** **P☐** **M☐** **N☐**
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	**Eval Rating**
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** **C☐** **P☐** **M☐** **N☐**
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) Yes **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.**	**4b** **C☐** **P☐** **M☐** **N☐**
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** **C☐** **P☐** **M☐** **N☐** **NA☐**
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** This measure may be susceptible to human error (i.e., recording the measure inaccurately or not at all). When data collection on this measure is done through participation in the STS Adult Cardiac Surgery Database, an auditing strategy is in place. Both STS and the Duke Clinical Research Institute have a list of database participants making participation in the STS Adult Cardiac Surgery Database easy to track. Each participant is responsible for the quality and accuracy of the data they submit to the database. The participant agrees to the following quality control measures in the participation agreement: i) Participant hereby warrants that all data submitted for inclusion in the STS National Database will be accurate and complete, and acknowledges that such data may be subject to independent audit. Participant will use its best efforts to address any data or related deficiencies identified by the independent data warehouse service provider and agrees to cooperate with and assist STS and its designees in connection with the performance of any independent audit.	**4d** **C☐** **P☐** **M☐** **N☐**

ii) Participant warrants that it will take all reasonable steps to avoid the submission of duplicative data for inclusion in the STS National Database, including but not limited to apprising the Director of the STS National Database and the independent data warehouse service provider about any other Participation Agreements in which an individual cardiothoracic surgeon named above or on Schedule A attached hereto (as amended from time to time) is also named. STS audited for these potential problems during testing.	
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** **4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** Data Collection: There are no direct costs to collect the data for this measure. Costs to develop the measure included volunteer cardiothoracic time, STS staff time, and DCRI statistician and project management time. Other fees: STS Adult Cardiac Surgery Database participants (single cardiothoracic surgeons or a group of surgeons) pay annual participant fees of $2,950 or $3,700, depending on whether participants are STS members (or whether the majority of surgeons in a group are STS members). As a benefit of STS membership, STS members are charged the lesser of the two fees. **4e.3 Evidence for costs:** **4e.4 Business case documentation:**	**4e** C☐ P☐ M☐ N☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** C☐ P☐ M☐ N☐
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited** ☐
Steering Committee: Do you recommend for endorsement? **Comments:**	Y☐ N☐ A☐
CONTACT INFORMATION	
Co.1 Measure Steward (Intellectual Property Owner) **Co.1 Organization** Society of Thoracic Surgeons, 633 North Saint Clair Street, Suite 2320, Chicago, Illinois, 60611 **Co.2 Point of Contact** Jane, Han, MSW, jhan@sts.org, 312-202-5856-	
Measure Developer If different from Measure Steward	

Co.3 Organization
Society of Thoracic Surgeons, 633 North Saint Clair Street, Suite 2320, Chicago, Illinois, 60611

Co.4 Point of Contact
Jane, Han, MSW, jhan@sts.org, 312-202-5856-

Co.5 Submitter If different from Measure Steward POC
Jane, Han, MSW, jhan@sts.org, 312-202-5856-, Society of Thoracic Surgeons

Co.6 Additional organizations that sponsored/participated in measure development

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
Members of the STS Task Force on Quality Initiatives provide clinical expertise as needed. The STS Workforce on National Databases meets at the STS Annual Meeting and reviews the measures on a yearly basis. Changes or updates to the measure will be at the recommendation of the Workforce.

Ad.2 If adapted, provide name of original measure:
Ad.3-5 If adapted, provide original specifications URL or attachment

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released: 2004
Ad.7 Month and Year of most recent revision: 12, 2010
Ad.8 What is your frequency for review/update of this measure? annually
Ad.9 When is the next scheduled review/update for this measure? 2011

Ad.10 Copyright statement/disclaimers:

Ad.11 -13 Additional Information web page URL or attachment: Attachment 0128 Sections 1b.2, 1b.4, 2b.3, 2f.3, 3a.6.pdf

Date of Submission (*MM/DD/YY*)**:** 03/28/2011

1b.2. Summary of Measure Results Demonstrating Performance Gap *(Descriptive statistics for performance results for this measure - distribution of scores for measured entities by quartile/decile, mean, median, SD, min, max, etc.)*

Measurement	*Duration of Prophylaxis for Cardiac Surgery Patients*
N	782
Mean	94.6%
1st	0.7%
5th	83.0%
10th	89.9%
25th	95.5%
Median	98.5%
75th	99.5%
90th	100.0%
95th	100.0%
99th	100.0%
Outlier	594 (76.0%)
High	494
Low	100

1b.4. Summary of Measure Results on Disparities by Population Group *(Descriptive statistics for performance results for this measure by population group)*

	Duration of Prophylaxis for Cardiac Surgery Patients	
	Population Group	
	Men	*Women*
Measurement		
N	886	814
Mean	93.4%	93.3%
1st	1.8%	2.8%
5th	77.1%	76.0%
10th	86.7%	87.1%
25th	94.0%	93.7%
Median	97.6%	97.4%
75th	99.2%	99.2%
90th	99.9%	100.0%
95th	100.0%	100.0%
99th	100.0%	100.0%
Outlier	656 (74.0%)	498 (61.2%)
High	518	389
Low	138	109

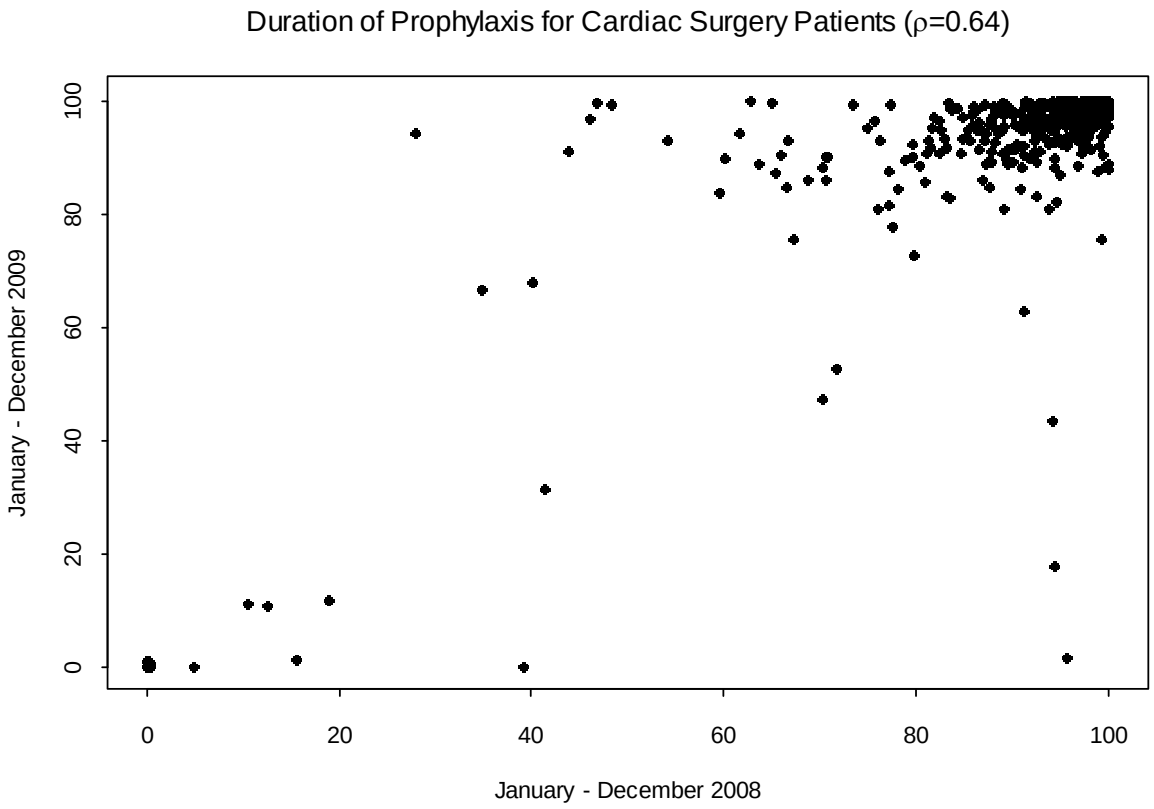
	Duration of Prophylaxis for Cardiac Surgery Patients		
	Population Group		
	Black	*White*	*Other*
Measurement			
N	228	881	191
Mean	92.8%	93.4%	93.9%
1st	15.7%	2.3%	18.2%
5th	76.1%	76.9%	77.2%
10th	85.9%	86.5%	87.7%
25th	92.5%	93.9%	93.3%
Median	96.6%	97.6%	97.6%
75th	98.9%	99.2%	99.4%
90th	100.0%	99.8%	100.0%
95th	100.0%	100.0%	100.0%
99th	100.0%	100.0%	100.0%

	Duration of Prophylaxis for Cardiac Surgery Patients		
	Population Group		
	Black	*White*	*Other*
Measurement			
Outlier	94 (41.2%)	671 (76.2%)	84 (44.0%)
High	58	530	62
Low	36	141	22

	Duration of Prophylaxis for Cardiac Surgery Patients	
	Population Group	
	Hispanic	*Non-Hispanic*
Measurement		
N	150	884
Mean	92.6%	93.3%
1st	15.4%	2.2%
5th	60.3%	76.4%
10th	86.6%	86.5%
25th	92.5%	93.8%
Median	97.0%	97.5%
75th	99.3%	99.1%
90th	100.0%	99.7%
95th	100.0%	100.0%
99th	100.0%	100.0%
Outlier	79 (52.7%)	681 (77.0%)
High	64	534
Low	15	147

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

Testing results: $\rho = 0.64$



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)*

Results below are from January 1, 2009-December 31, 2009. The sample contains 782 STS Adult Cardiac Surgery Database Participants who had at least 100 eligible cases for the measure and reported data to STS for all 12 months.

Measurement	*Duration of Prophylaxis for Cardiac Surgery Patients*
N	782
Mean	94.6%
1st	0.7%
5th	83.0%
10th	89.9%
25th	95.5%
Median	98.5%
75th	99.5%
90th	100.0%
95th	100.0%
99th	100.0%
Outlier†	594 (76.0%)
High	494
Low	100

†Represents the number of participants that are outliers according to two-sided 95% binomial confidence interval.

3a.6. Results *(Qualitative or quantitative results and conclusions)*

Although formal testing of interpretability has not been performed, this measure has been used and reported for STS Adult Cardiac Surgery database participants since 2007. Current report presentation and interpretation manuals are presented below. These materials are updated as needed based upon feedback from database participants.

1) Report Overview and Interpretation Manual:

The NQF Measures Report

a. Organization

This report section is separated into three areas corresponding to: 1) NQF volume measures, 2) NQF process measures, and 3) NQF outcomes measures, in that order. The header at the top of each page references the report section for that page. Each NQF measure is presented on a single row in the section. Tabular data are on the left-hand side of each page and a standard graphic representation is shown on the right-hand side.

b. Statistical Calculation and Details – NQF Measures

Time period: This report section contains information on the individual STS participant and overall STS performance for the most recent 12 months for volume, process and CABG outcomes measures and the most recent 60 months for Valve and Valve + CABG outcomes. The 5 years (60 months) of performance for outcomes involving Valve procedures is necessary due to smaller sample sizes.

Volume Measures: The NQF report provides average annual case volumes data for three surgery categories: i) Isolated CABG, ii) Valve without CABG, and iii) combined CABG + Valve. Definitions of the three surgery categories are provided in Table 2 of this NQF Report Overview. For each type of surgery, the participant's annualized volume is calculated as:

$$\text{Participant Annualized Volume} = 12 \times (\#\text{ of surgeries}) / (\#\text{ of months})$$

where (# of surgeries) denotes the number of surgeries of the specified type performed by the participant during the specified time period, and (# of months) is the number of months during the specified time period for which the participant submitted at least one cardiac surgery of any type. The intent of calculating "annualized" volumes is to adjust for participants who participated in the database for fewer months than the time period specified. For participants who participated in the database and submitted cases every month during 2006, the annualized volume for 2006 is simply the total number of cases.

The STS Average Annualized Volume is the average value of all of the participant annualized volumes across the entire population of STS participants. The Participant Percentile indicates the percent of STS participants whose annualized volumes are less than, or equal to, your own. Higher percentiles indicate higher volumes in relation to other STS participant sites. The Distribution of Participant Values shows the range and percentiles of the distribution of participant annualized volumes across all database participants. For example, 90% of participants have annualized volumes less than or equal to the value marked "90th percentile." Confidence intervals are not provided for volume measures, as volume is known with certainty and is not estimated.

Process Measures: The NQF process measures provide data on the frequency of usage of five therapies among subsets of Isolated CABG patients. The therapies are: i) preoperative beta blockade therapy, ii) use of IMA, iii) discharge anti-platelet medication, iv) discharge beta blockade therapy, and v) discharge anti-lipid medication. The patient population for each measure differs, in accordance with the NQF specifications (see Table 2 of this NQF Report Overview for details). The number of Eligible

Procedures is the number of cases performed by the participant during the specified time period who meet the eligibility requirements to be included in the calculations when summarizing the participant's data. ***Beginning with the 2008 Harvest 3 report (covering the procedure time period through 6/30/2008), STS implementation of NQF medication process measures using data version 2.61 excludes records for which the medication was contraindicated/not indicated from the eligible population.*** The main summary statistic, Participant Usage, is the percent of eligible Isolated CABG cases during the specified time period for which the patient received the specified therapy. The Overall STS Usage is the percent of all eligible patients in the entire STS population during the specified time period who received the specified therapy. ***In calculating these percentages, missing data are treated as a "No", emphasizing the importance of having complete data in these fields***.

The Participant Percentile indicates the percent of STS participants who applied the therapy in their respective populations less frequently than or as frequently as did your institution. The Distribution of Participant Values shows the range and percentiles of the distribution of participant usage across all participants in the database. For example, 90% of participants use the therapy less frequently than the amount indicated by the "90th percentile". A bar identified as "Participant" indicates the point estimate and limits of a 95% Confidence Interval (CI) for the participant's usage of therapy. The underlying parameter being estimated is the long-run usage rate that would be observed in a large sample of patients. The 95% CI indicates the range of usage rates that are consistent with the data in light of sampling variability.

Outcomes Measures: The NQF outcomes data provide risk-adjusted analyses of mortality and morbidity for Isolated CABG surgery as well as risk-adjusted operative mortality for Isolated AVR, Isolated MVR, AVR+CABG, and MVR+CABG. The main summary statistic provided is the Participant's Estimated Odds Ratio (OR) based on a hierarchical logistic regression analysis. The OR measures the impact that a participant's performance level has on a patient's probability of experiencing an adverse outcome. The interpretation is similar to that of an O/E ratio (see the Risk-Adjusted Results: Overview portion of the General Report Overview for details on STS risk adjustment). An OR greater than 1.0 implies that the participant increases a patient's risk of experiencing the outcome, relative to an "average" STS participant. An OR less than 1.0 implies that the participant decreases a patient's risk of experiencing the outcome, relative to an "average" STS participant. Each measure is calculated among patients undergoing surgery of the type specified during the time period specified who additionally meet certain eligibility requirements. The column labeled Eligible Procedures indicates the number of patients who met the inclusion criteria to be included in the analysis for the indicated measure. The Participant Percentile is the percent of STS participants who have an estimated OR that is greater than or equal to your estimated OR. Note that this is different than performance percentiles for process measures, where the percentile indicates the percentage of STS participants with performance that is *less than* the specified number. This simply reflects the fact that high process compliance is desirable, whereas a high OR is undesirable.

The Observed Participant Rate is the percent of eligible patients who experienced the specified outcome. Unlike the participant estimated OR, the observed participant rate is not risk-adjusted. The estimated OR is the main summary statistic for summarizing the NQF measure in this report.

The Distribution of Participant Values shows the range and percentiles of the distribution of estimated Odds Ratios across all STS participants. For example, 90% of STS participants have an OR greater than the value indicated by the "90th percentile." The line that extends to the left and right of the Participant Value indicates the lower and upper limits of a 95% Confidence Interval (CI) surrounding the participant's estimated OR.

c. Technical Notes

Calculation of Percentiles for the Distribution of Participant Values: The graph provided for each measure contains information about the distribution of the value of the measure across all STS

participants, namely the minimum, maximum, 10th percentile, 50th percentile, and 90th percentile. The "X^{th}" percentile, denoted P_x, is loosely defined as the number having the property that X% of the participant values are less than P_x, and (100 – X)% of the participant values are greater than P_x. **For process measures, participants with greater than 5% missing data were excluded when calculating percentiles of the STS distribution and do not have a calculated participant percentile**. For participants having less than 5% missing data on a process measure, the missing values on the process measure were converted to "No" before calculating percentiles. For outcomes measures, all participants submitting at least one eligible case were included when calculating percentiles of the STS distribution. Missing data on outcomes variables were treated as "No."

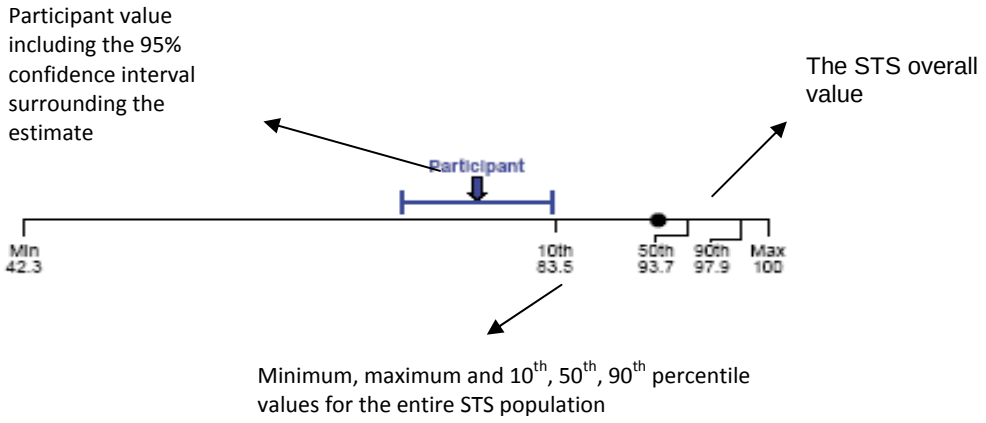
NQF/STS Results Comparison: Participants may see some differences between summaries of their data provided in the NQF section of the report and summaries of their data reported elsewhere in the STS report. These differences are due to subtle variations in variable definitions, patient inclusion and exclusion criteria, and rules for handling missing data in the NQF section versus the rest of the report. Definitions used in the NQF report were designed to match current NQF specifications as closely as possible. It is expected that these differences will eventually disappear as the NQF measures are refined. Some important differences are:

Case Volumes – The NQF report section presents "annualized" volumes. These are case volumes that have been adjusted for the number of months that a participant was an active contributor to the database. Elsewhere in the STS report, total case volumes are presented without adjustment for the length of participation.

Eligible Cases - The NQF report also presents the number of "eligible cases" for each measure. Separate inclusion criteria are applied to each measure, and these inclusion criteria do not always match the definitions used elsewhere in the STS report. Please refer to the footnotes in each section for specific details.

Interpretation Manual

In addition to the statistics provided for each of the STS Composite Quality Domains and NQF measures, a figure representing the distribution of values for the entire STS population is provided.



The figure allows participants to quickly judge their performance relative to the overall STS. The scale of the figure is set up such that the right side of the distribution represents the most favorable performance and the left side represents the least favorable performance (Note that in some cases smaller numbers will be on the left; in other instances, smaller numbers will be on the right. For example, for the Pre-operative Beta Blockade Therapy measure, the far left side of the distribution will contain the *lowest* percentage Beta Blockade Therapy for an STS participant – this corresponds to least

favorable performance. Alternatively, for the Operative Mortality Measure, the far left side of the distribution will contain the *highest* Estimated Odds Ratio – this also corresponds to least favorable performance). If a participant's value for a given measure is to the left of the STS overall value, the participant is performing worse on that measure than the overall STS. Conversely, if the participant's value for a given measure is located to the right of the overall STS value, the participant is performing better than the overall STS.

NOTE! Care should be given to reading these figures. In some instances, the various percentiles presented cluster very close together in the data. In such cases, the label for the percentile is not necessarily located immediately at the point on the distribution where the percentile occurs. An example of this is apparent in the figure above: The 50th percentile corresponds to a value of 93.7 and looks to align fairly closely with the STS overall value as represented by the large black dot. However, the expandable figure marking actually points to a place somewhere to the right of the STS overall value for the 50th percentile marking. So the STS overall value would be some amount less than 93.7.

Also, please note that in some cases, small sample sizes preclude valid comparisons between the participant and the STS overall. Such instances are clearly noted in the report output.

a. NQF Measures Interpretation Example

Sample CABG Operative Mortality results – tabular and figure representation.

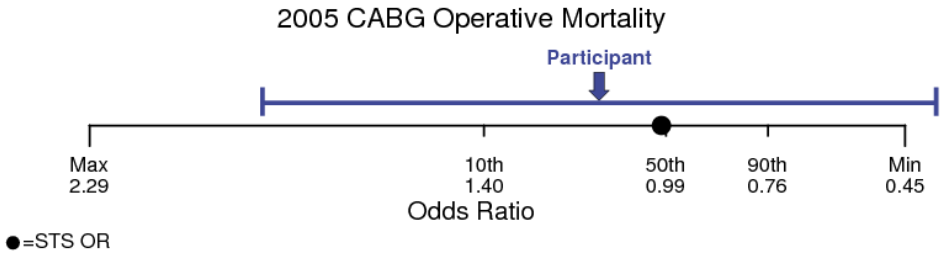
NQF Measure	Eligible Procedures	Participant Estimated OR	Participant Percentile	Participant Observed Rate
2005 CABG Operative Mortality	74	1.14	26.3	5.4%

Eligible Procedures: 74 patients met the inclusion criteria for the indicated measure.

Participant Estimated OR (Odds Ratio): The main summary statistic measuring the impact that a participant's performance has on a patient's probability of experiencing an adverse outcome has a value of 1.14 indicating worse than expected performance.

Participant Percentile: 26.3% of STS participants had an estimated OR greater than or equal to your estimated OR. In other words, 26.3% had the same or worse performance.

Participant Observed Rate: 5.4% of the 74 eligible patients experienced the specified outcome.



The highest OR among all STS participants = 2.29
The lowest OR among all STS participants = 0.45
The STS average OR is 1.00

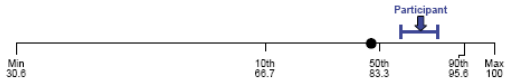
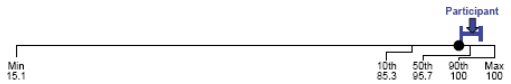
The 95% confidence interval for the participant's OR spans from <0.45 to ~1.90

2) Sample page from section of the report that contains NQF measure results:

NQF Measures
Process Measures

Participant 99999
STS Period Ending 12/31/2008

Duke Clinical Research Institute
DUKE UNIVERSITY MEDICAL CENTER

NQF Measure	Eligible Procedures	Participant Usage (95% CI)	Participant Percentile	Overall STS Usage	Distribution of Participant Values ● = Overall STS Usage
Jan 2008 - Dec 2008 Preoperative Beta Blockade Therapy[1]	541	89.3% (86.4 , 91.8)	69.9	82.1%	
Jan 2008 - Dec 2008 Use of IMA[2]	536	96.5% (94.5 , 97.9)	63.3	94.2%	
Jan 2008 - Dec 2008 Discharge Anti-Platelet Medication[3]	536	98.7% (97.3 , 99.5)	68.7	96.1%	
Jan 2008 - Dec 2008 Discharge Beta Blockade Therapy[4]	538	96.1% (94.1 , 97.6)	53.4	93.7%	
Jan 2008 - Dec 2008 Discharge Anti-Lipid Treatment[4]	535	91.8% (89.1 , 94.0)	40.7	91.4%	

[1]Excludes v2.61 contranindicated / not indicated records.
[2]Excludes patients with prior CABG surgery
[3]Anti-platelet use includes Aspirin and ADP Inhibitors, and excludes in-hospital mortalities. Excludes v2.61 contranindicated / not indicated records.
[4]Excludes in-hospital mortalities. Excludes v2.61 contranindicated / not indicated records.

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0264 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Prophylactic Intravenous (IV) Antibiotic Timing
De.2 **Brief description of measure:** Rate of ASC patients who received IV antibiotics ordered for surgical site infection prophylaxis on time
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** Not included in a composite or paired with another measure
De.4 **National Priority Partners Priority Area:** Safety De.5 **IOM Quality Domain:** Effectiveness De.6 **Consumer Care Need:** Staying healthy

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** Proprietary measure A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission A.4 **Measure Steward Agreement attached:** NQF Measure Steward Agreement with ASC QC.pdf	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and	**B**

update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Frequently performed procedure, Leading cause of morbidity/mortality, High resource use, Severity of illness, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** As a result of advances in surgery and anesthesia, approximately 80 percent of surgeries in the United States are now performed on an outpatient basis. Ambulatory surgical centers perform approximately 40%, or more than 22 million, of those outpatient surgeries. The timeliness of prophylactic IV antibiotic administration is measured for surgical patients in both the hospital inpatient and outpatient settings, and given the high volume of surgical procedures performed, should also be measured in the ambulatory surgical center setting. 1 Accumulated evidence indicates that timely administration of prophylactic intravenous antibiotics reduces the incidence of surgical site infections. The evidence suggests that administration of antibiotics within one hour of incision is associated with maximal efficacy. Further prolonging the interval between administration and incision/inflation of the tourniquet is associated with progressively higher risk of surgical wound infection. 2-11 Surgical site infection rates in ambulatory surgery are not well understood. However, in other settings, surgical site infections occur in 2 to 5 percent of clean extra-abdominal surgeries. Evidence suggests each infection increases a hospital stay by 7 to 10 days and adds from $3,000 to $29,000 in charges. Patients who	**1a** C☐ P☐ M☐ N☐

develop surgical site infections are thought to have at least twice the incidence of mortality when compared to surgical patients without a surgical site infection. 12-20

1a.4 Citations for Evidence of High Impact:

1 U.S. Department of Health and Human Services. Centers for Medicare & Medicaid Services. http://www.cms.gov/.

2 Steinberg JP, Barun BI, Hellinger WC, Kusek L, Bozikis MR, Bush AJ, Dellinger EP, Burke JP, Simmons B, Kritchevsky SB, Trial to reduce antimicrobial prophylaxis errors (TRAPE) study group. Timing of antimicrobial prophylaxis and the risk of surgical site infections: results from the trial to reduce antimicrobial prophylaxis errors. Ann Surg 2009;250(1):10-6.

3 Forbes SS, Stephen WJ, Harper WL, Loeb M, Smith R, Christoffersen EP, McLean RF. Implementation of evidence-based practices for surgical site infection prophylaxis: results of a pre- and postintervention study. J Am Coll Surg. 2008 Sep;207(3):336-41.

4 Koopman E, Nix DE, Erstad BL, Demeure MJ, Hayes MM, Ruth JT, Mattias KR. End-of-procedure cefazolin concentrations after administration for prevention of surgical-site infection. Am J Health Syst Pharm. 2007 Sep;64(18):1927-34.

5 Manniën J, van Kasteren ME, Nagelkerke NJ, Gyssens IC, Kullberg BJ, Wille JC, de Boer AS. Effect of optimized antibiotic prophylaxis on the incidence of surgical site infection. Infect Control Hosp Epidemiol. 2006;27(12):1340-6.

6 Burke J. Maximizing appropriate antibiotic prophylaxis for surgical patients: an update from LDS Hospital, Salt Lake City. Clin Infect Dis. 2001;33(Suppl 2):S78-83.

7 Classen D et al. The timing of prophylactic administration of antibiotics and the risk of surgical wound infection. NEJM. 1992;326(5):281-286.

8 Silver A et al. Timeliness and use of antibiotic prophylaxis in selected inpatient surgical procedures. The Antibiotic Prophylaxis Study Group. Am J Surg. 1996;171(6):548-552.

9 Papaioannou N, Kalivas L, Kalavritinos J, and Tsourvakas S. Tissue concentrations of third-generation cephalosporins (ceftazidime and ceftriaxone) in lower extremity tissues using a tourniquet. Arch Orthop Trauma Surg. 1994;113(3):167-9.

10 Dounis E, Tsourvakas S, Kalivas L, and Giamacellou H. Effect of time interval on tissue concentrations of cephalosporins after tourniquet inflation. Highest levels achieved by administration 20 minutes before inflation. Acta Orthop Scand. 1995;66(2):158-60.

11 Friedrich L, White R, Brundage D, Kays M, Friedman R. The effect of tourniquet inflation on cefazolin tissue penetration during total knee arthroplasty. Pharmacotherapy. 1990; 10(6):373-7.

12 Cruse P. Wound infection surveillance. Rev Infect Dis 1981; 3:734-737.

13 Cruse PJ, Foord R. The epidemiology of wound infection: a 10-year prospective study of 62,939 wounds. Surg Clin North Am 1980; 60:27-40.

14 Engemann JJ, Carmeli Y, Cosgrove SE, et al. Adverse clinical and economic outcomes attributable to methicillin resistance among patients with Staphylococcus aureus surgical site infection. Clin Infect Dis 2003; 36:592-598.

15 Kirkland K, Briggs J, Trivette S, Wilkinson W, and Sexton D. The impact of surgical-site infections in the 1990s: attributable mortality, excess length of hospitalization, and extra costs. Infect Control Hosp Epidemiol. 1999;20(11):725-30.

16 Coello R, Glenister H, Fereres J, et al. The cost of infection in surgical patients: a case-control study. J Hosp Infect 1993; 25:239-250.

17 Vegas AA, Jodra VM, Garcia ML. Nosocomial infection in surgery wards: a controlled study of increased duration of hospital stays and direct cost of hospitalization. Eur J Epidemiol 1993; 9:504-510.

18 Whitehouse JD, Friedman ND, Kirkland KB, Richardson WJ, Sexton DJ. The impact of surgical-site infections following orthopedic surgery at a community hospital and a university hospital: adverse quality of life, excess length of stay, and extra cost. Infect Control Hosp Epidemiol 2002; 23:183-189.

19 Apisarnthanarak A, Jones M, Waterman BM, Carroll CM, Bernardi R, Fraser VJ. Risk factors for spinal surgical-site infections in a community hospital: a case-control study. Infect Control Hosp Epidemiol 2003; 24:31-36.

20 Encinosa WE, Hellinger FJ. The impact of medical errors on ninety-day costs and outcomes: An examination of surgical patients. Health Serv Res. 2008 Dec;43(6):2067-85.

1b. Opportunity for Improvement

1b.1 **Benefits (improvements in quality) envisioned by use of this measure:** Improving the rate of timely administration of intravenous prophylactic antibiotics is expected to reduce the risk of surgical site infection

1b.2 **Summary of data demonstrating performance gap (variation or overall poor performance) across providers:**
The rates for this measure were collected for a sample of 349 ambulatory surgery centers 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:**
A convenience sample of 349 ambulatory surgery centers was selected to assess the opportunity for improvement for this measure. The centers were located throughout the US. Services from the first and 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 not intended to evaluate disparities by population group

1b.5 **Citations for data on Disparities:**
No data available for disparities by population group. Please see 1b.4. above.

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P☐
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N☐

1c. Outcome or Evidence to Support Measure Focus

1c.1 **Relationship to Outcomes** (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Evidence suggests improving the rate of timely administration of intravenous prophylactic antibiotics can be expected to reduce the risk of surgical site infection.

1c.2-3. **Type of Evidence:** Evidence-based guideline, Randomized controlled trial, Expert opinion, Systematic synthesis of research, Meta-analysis

1c.4 **Summary of Evidence** (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
Evidence suggests improving the rate of timely administration of intravenous prophylactic antibiotics can be expected to reduce the risk of surgical site infection.

1c.5 **Rating of strength/quality of evidence (***also provide narrative description of the rating and by whom***):**
A-I rating. A=Good evidence to support a recommendation for use; I = Evidence from > or = 1 properly randomized, controlled trial. Rating given by SHEA/IDSA.

1c.6 **Method for rating evidence:** Adapted from the Canadian Task Force on the Periodic Health

1c
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N☐

Examination.
Strength of recommendation:
A Good evidence to support a recommendation for use
B Moderate evidence to support a recommendation for use
C Poor evidence to support a recommendation
Quality of evidence:
I Evidence from > or = 1 properly randomized, controlled trial
II Evidence from > or = 1 well-designed clinical trial, without randomization; from cohort or case-control analytic studies (preferably from >1 center); from multiple time series; or from dramatic results from uncontrolled experiments
III Evidence from opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

1c.7 Summary of Controversy/Contradictory Evidence: We are not aware of any evidence contradicting current recommendations regarding the appropriate timing of prophylactic antibiotic administration.

1c.8 Citations for Evidence (*other than guidelines*): Steinberg JP, Barun BI, Hellinger WC, Kusek L, Bozikis MR, Bush AJ, Dellinger EP, Burke JP, Simmons B, Kritchevsky SB, Trial to reduce antimicrobial prophylaxis errors (TRAPE) study group. Timing of antimicrobial prophylaxis and the risk of surgical site infections: results from the trial to reduce antimicrobial prophylaxis errors. Ann Surg 2009;250(1):10-6.

Bratzler DW, Hunt DR. The surgical infection prevention and surgical care improvement projects: national initiatives to improve outcomes for patients having surgery. Clin Infect dis 2006;43(3):322-30.

Dellinger EP. Prophylactic antibiotics: administration and timing before operation are more important than administration after operation. Clin Infect Dis 2007;44:928-930.

Burke J. Maximizing appropriate antibiotic prophylaxis for surgical patients: an update from LDS Hospital, Salt Lake City. Clin Infect Dis. 2001;33(Suppl 2):S78-83.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number*):
See pages S55-S56 of guideline referenced below.
1. Administer antimicrobial prophylaxis in accordance with evidence-based standards and guidelines.
a. Administer prophylaxis within 1 hour before incision to maximize tissue concentration.
i. Two hours are allowed for the administration of vancomycin and fluoroquinolones.

1c.10 Clinical Practice Guideline Citation: Anderson DJ, Kaye KS, Classen D, Arias KM, Podgorny K, Burstin H, Calfee DP, Coffin SE, Dubberke ER, Fraser V, Gerding DN, Griffin FA, Gross P, Klompas M, Lo E, Marschall J, Mermel LA, Nicolle L, Pegues DA, Perl TM, Saint S, Salgado CD, Weinstein RA, Wise R, Yokoe DS. Strategies to prevent surgical site infections in acute care hospitals. Infect Control Hosp Epidemiol 2008 Oct;29 Suppl 1:S51-61.
1c.11 National Guideline Clearinghouse or other URL:
http://www.guideline.gov/content.aspx?id=13399&search=%22surgical+site+infection%22

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom*):
A-I

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF*):
Adapted from the Canadian Task Force on the Periodic Health Examination.
Strength of recommendation:
A Good evidence to support a recommendation for use
B Moderate evidence to support a recommendation for use
C Poor evidence to support a recommendation
Quality of evidence:
I Evidence from > or = 1 properly randomized, controlled trial
II Evidence from > or = 1 well-designed clinical trial, without randomization; from cohort or case-control

analytic studies (preferably from >1 center); from multiple time series; or from dramatic results from uncontrolled experiments III Evidence from opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees 1c.14 **Rationale for using this guideline over others:** Most recent guideline for the prevention of surgical site infection.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 **Do you have a web page where current detailed measure specifications can be obtained?** S.2 **If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 **Numerator Statement (***Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome***):** 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 2a.2 **Numerator Time Window (***The time period in which cases are eligible for inclusion in the numerator***):** In-facility, prior to discharge 2a.3 **Numerator Details (***All information required to collect/calculate the numerator, including all codes, logic, and definitions***):** 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	
2a.4 **Denominator Statement (***Brief, text description of the denominator - target population being measured***):** All ASC admissions with a preoperative order for a prophylactic IV antibiotic for prevention of surgical site infection 2a.5 **Target population gender:** Female, Male 2a.6 **Target population age range:** All ages 2a.7 **Denominator Time Window (***The time period in which cases are eligible for inclusion in the*	**2a-specs** **C☐** **P☐** **M☐** **N☐**

denominator):
In-facility, prior to discharge

2a.8 **Denominator Details (***All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):**
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

2a.9 **Denominator Exclusions (***Brief text description of exclusions from the target population***):** 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.

2a.10 **Denominator Exclusion Details (***All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
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.

2a.11 **Stratification Details/Variables (***All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
The measure is not stratified

2a.12-13 **Risk Adjustment Type:** No risk adjustment necessary

2a.14 **Risk Adjustment Methodology/Variables (***List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
Not applicable

2a.15-17 **Detailed risk model available Web page URL or attachment:**

2a.18-19 **Type of Score:** Rate/proportion
2a.20 **Interpretation of Score:** Better quality = Higher score
2a.21 **Calculation Algorithm (***Describe the calculation of the measure as a flowchart or series of steps***):**
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.

2a.22 **Describe the method for discriminating performance** *(e.g., significance testing)***:**
Facilities reporting data may compare their performance to the average performance. Alternatively, facilities may compare their performance to a percentile ranking (such as the 50th percentile (median)) to determine their relative performance.

2a.23 **Sampling (Survey) Methodology** *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
The measure is not based on a sample

2a.24 **Data Source (***Check the source(s) for which the measure is specified and tested)*
Paper medical record/flow-sheet

2a.25 **Data source/data collection instrument (***Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
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.

2a.26-28 **Data source/data collection instrument reference web page URL or attachment:** URL Not required http://ascquality.org/documents/ASCQualityCollaborationImplementationGuide.pdf

2a.29-31 **Data dictionary/code table web page URL or attachment:** URL Not required http://ascquality.org/documents/ASCQualityCollaborationImplementationGuide.pdf

2a.32-35 **Level of Measurement/Analysis** (*Check the level(s) for which the measure is specified and tested)* Facility/Agency

2a.36-37 **Care Settings (***Check the setting(s) for which the measure is specified and tested)* Ambulatory Care: Amb Surgery Center

2a.38-41 **Clinical Services** (*Healthcare services being measured, check all that apply*) Other ambulatory surgical center

TESTING/ANALYSIS

2b. Reliability testing

2b.1 **Data/sample** *(description of data/sample and size)*: A convenience sample of 16 ambulatory surgery centers was selected for a retrospective chart audit comparing the reported values for the measure versus the values identified from the medical record. The centers were located in eight different states throughout the US. Services from April 1, 2010 to June 30, 2010 were reviewed in the course of the reliability testing.

2b.2 **Analytic Method** *(type of reliability & rationale, method for testing)*:
The numerator (number of ASC admissions during the period who received the ordered prophylactic IV antibiotic for prevention of surgical site infection on time) and denominator (number of ASC admissions with a preoperative order for a prophylactic IV antibiotic for prevention of surgical site infection during the period) values were compared for all 16 centers in the sample.

2b.3 **Testing Results** *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
The error rates at 11 of the 16 (69%) of the ASCs are zero for both the numerator and denominator. The mean error rate for the numerator and denominator were 2.3% and 2.1% respectively. The median error rates were zero for both the numerator and denominator. One outlier ASC recorded an error rate of 61.1%. This was a very small ASC (32 orders for preoperative antibiotics). The errors were attributed to data entry/transcription errors. The results show an excellent level of reliability with an overall 97.7% accuracy rate.

2b C☐ P☐ M☐ N☐

2c. Validity testing

2c.1 **Data/sample** *(description of data/sample and size)*: Validity was measured via a formal consensus process. A questionnaire that included ratings of the various characteristics of the measure was distributed to 8 clinicians (RNs) who currently work in ambulatory surgery centers or have responsibility for multiple surgery centers. Two have credentials in quality and the others are involved in quality in their current positions. Responses were received from 7 of the panel members.

2c.2 **Analytic Method** *(type of validity & rationale, method for testing)*:
Validity was measured via a formal consensus process. Six of the seven respondents responded with a 5/5 rating for the question most related to content validity for this measure. Due to the high level of consensus on the primary validity question, multiple rounds of Delphi-type evaluations were not necessary. These results demonstrate a high level of agreement around the validity of the measure.

2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test*

2c C☐ P☐ M☐ N☐

conducted): Each attribute was measured on a 5 point Likert Scale. The attributes related to validity and average scores are listed below: 1. The measure appears to measure what it is intended to. (Median: 5/5; Mean: 4.9/5.0) 2. The measure is defined in a way that will allow for consistent interpretation of the inclusion and exclusion criteria from center to center. (Median: 5/5; Mean: 4.7/5.0) 3. The data required for the measure are likely to be obtained with reasonable effort. (Median: 5/5; Mean: 4.4/5.0) 4. The data required for the measure are likely to be obtained with reasonable cost. (Median: 5/5; Mean: 4.6/5.0) 5. The data required for the measure can be generated during care delivery. (Median: 5/5; Mean: 4.6/5.0)	
2d. Exclusions Justified 2d.1 **Summary of Evidence supporting exclusion(s):** Measure exclusions do not limit the denominator cohort, but rather are designed to improve the accuracy of data collection by providing additional clarifying statements to the measure user. 2d.2 **Citations for Evidence:** Not applicable 2d.3 **Data/sample** *(description of data/sample and size)*: Not applicable 2d.4 **Analytic Method** *(type analysis & rationale)*: Not applicable 2d.5 **Testing Results** *(e.g., frequency, variability, sensitivity analyses)*: Not applicable	**2d** C☐ P☐ M☐ N☐ NA ☐
2e. Risk Adjustment for Outcomes/ Resource Use Measures 2e.1 **Data/sample** *(description of data/sample and size)*: This measure is not risk adjusted 2e.2 **Analytic Method** *(type of risk adjustment, analysis, & rationale)*: Not applicable 2e.3 **Testing Results** *(risk model performance metrics)*: Not applicable 2e.4 **If outcome or resource use measure is not risk adjusted, provide rationale:** This process measure does not require risk adjustment.	**2e** C☐ P☐ M☐ N☐ NA ☐
2f. Identification of Meaningful Differences in Performance 2f.1 **Data/sample from Testing or Current Use** *(description of data/sample and size)*: The rates for this measure were collected for 349 ambulatory surgery centers throughout the US for services provided during April to June 2010. 2f.2 **Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Using the ASC as the unit of analysis, a 95% confidence interval around the mean timely administration of antibiotic rate of 96.0% is (94.4%, 97.5%). Timely administration of antibiotic rates lower than 94.4% would be considered statistically different from the sample mean rate. Since each delay in administration of the preoperative antibiotic may represent increased risk exposure for the patient, a rate lower than the 94.4% is also of practical significance. 2f.3 **Provide 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 0.0% to a maximum of 100%.	**2f** C☐ P☐ M☐ N☐

The mean rate was 96.0% (SD: 14.6%), while the median rate was 100%. The maximum rate of 100% and a third quartile value of 100% demonstrate that there is an opportunity for improvement in this measure and that full compliance is achievable.	
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: This measure is specified for a single data source (paper medical record/flow-sheet) as noted in 2a.24. above **2g.2 Analytic Method** *(type of analysis & rationale)*: Not applicable **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*: Not applicable	**2g** C☐ P☐ M☐ N☐ NA ☐
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: This measure is not stratified **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:** At the present time, a federal quality reporting system has not yet been proposed or implemented for ambulatory surgical centers. We anticipate that CMS will issue its proposals for an ASC quality reporting system in the near future. When the system is implemented, we anticipate patient level demographic data will be collected in association with ASC data on the timing of administration of prophylactic intravenous antibiotics, allowing for the detection of any disparities.	**2h** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	***2*** C☐ P☐ M☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** In use **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*): The ASC Quality Collaboration posts a public report of quality data on six ASC quality measures endorsed by the NQF on a quarterly basis. This quarterly report included aggregated performance data on the Prophylactic Intravenous Antibiotic Timing measure. The report for the second quarter of 2010 is available at: http://www.ascquality.org/qualityreport.cfm. Six hundred seventy-one (671) ASCs submitted data on the timing of prophylactic intravenous antibiotic administration for the second quarter 2010 report. **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years*): This measure is in use in several other initiatives. For example, the ASC Association includes this metric in its Outcomes Monitoring Project, which is described at http://www.ascassociation.org/outcomes/. It is also in use in various state association quality data collection and reporting projects, including the Texas	**3a** C☐ P☐ M☐ N☐

Ambulatory Surgery Center Association, located at http://tascs.org/. In addition, the measure has been adopted by the Minnesota Department of Health (MDH) for state reporting by ASCs beginning July 2011. This is described at the MDH website at: http://www.health.state.mn.us/healthreform/measurement/adoptedrule/QualityMeasurementAppendices_101129.pdf **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) 3a.4 **Data/sample** *(description of data/sample and size)*: Interpretability was measured via a formal consensus process. A questionnaire that included ratings of the various characteristics of the measure was distributed to 8 clinicians (RNs) who currently work in ambulatory surgery centers or have responsibility for multiple surgery centers. Two have credentials in quality and the others are involved in quality in their current positions. Responses were received from 7 of the panel members. 3a.5 **Methods** *(e.g., focus group, survey, QI project)*: The survey was summarized to assess the panel's level of agreement with statements that measured the interpretability of the measure. 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)*: Each attribute was measured on a 5 point Likert Scale. The attributes related to usability and average scores are listed below: 1. A provider can understand the results of the measure. (Median: 5/5; Mean: 4.9/5.0) 2. If necessary, a provider can use the results of the measure to take action. (Median: 5/5; Mean: 4.9/5.0) 3. This measure has a direct link to improving the outcome and/or process of care. (Median: 5/5; Mean: 4.9/5.0)	
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:** NQF # 0269: Timing of Prophylactic Antibiotics - Administering Physician; NQF # 0270: Timing of Antibiotic Prophylaxis: Ordering Physician; NQF # 0472: Prophylactic Antibiotic Received Within One Hour Prior to Surgical Incision or at the Time of Delivery – Cesarean section; NQF # 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?** Certain, but not all, of the measure specifications have been harmonized with related measures. The most significant difference is that the ASC QC measure does not incorporate code sets to specify the denominator, as doing so means that data collection becomes retrospective (i.e., after the billing code has been assigned based on the supporting clincal documentation) and therefore inefficient and more expensive for the provider.	**3b** C☐ P☐ M☐ N☐ NA ☐
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** The measure allows concurrent data collection. 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:** The measure specifications allow concurrent data collection, improving the efficiency of measure use.	**3c** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐

	M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes 4a.1-2 **How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition)	4a C☐ P☐ M☐ N☐
4b. Electronic Sources 4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No 4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.** Widespread adoption of electronic health records in ambulatory surgical centers would be needed to achieve electronic capture of data elements.	4b C☐ P☐ M☐ N☐
4c. Exclusions 4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No 4c.2 **If yes, provide justification.**	4c C☐ P☐ M☐ N☐ NA ☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences 4d.1 **Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** Experience with this measure and feedback from users indicates that reliability is high. Most errors appear to be the result of human factors, such as data entry errors. The ASC Quality Collaboration is not aware of any unintended consequences as a result of the use of this measure.	4d C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation 4e.1 **Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** The ASC Quality Collaboration has included "Frequently Asked Questions" in the Implementation Guide for the measure to assist users in their implementation of data collection. 4e.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** The measure is designed to allow the possibility of concurrent data collection, which minimizes staff time, effort and cost. There are no fees associated with the use of this measure and benchmarking data is publicly available on the ASC Quality Collaboration´s website. 4e.3 **Evidence for costs:** The survey used for validity and interpretability also asked respondents about the feasibility and cost of collecting data. The following two questions support the premise that the cost to collect this information is reasonable for the ASC: The data required for the measure are likely to be obtained with reasonable effort. (Median: 5/5; Mean:	4e C☐ P☐ M☐ N☐

4.4/5.0) The data required for the measure are likely to be obtained with reasonable cost. (Median: 5/5; Mean: 4.6/5.0) 4e.4 **Business case documentation:** Not applicable	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**

CONTACT INFORMATION

Co.1 **Measure Steward (Intellectual Property Owner)**
Co.1 **Organization**
ASC Quality Collaboration, 5686 Escondida Blvd S, St. Petersburg, Florida, 33715

Co.2 **Point of Contact**
Donna, Slosburg, BSN, LHRM, CASC, donnaslosburg@ascquality.org, 727-867-0072-

Measure Developer If different from Measure Steward
Co.3 **Organization**
ASC Quality Collaboration, 5686 Escondida Blvd S, St. Petersburg, Florida, 33715

Co.4 **Point of Contact**
Donna, Slosburg, BSN, LHRM, CASC, donnaslosburg@ascquality.org, 727-867-0072-

Co.5 **Submitter If different from Measure Steward POC**
Donna, Slosburg, BSN, LHRM, CASC, donnaslosburg@ascquality.org, 727-867-0072-, ASC Quality Collaboration

Co.6 **Additional organizations that sponsored/participated in measure development**

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 **Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**
The ASC Quality Collaboration workgroup members meet via teleconference to develop, critique, and modify candidate measures; to maintain existing measures; and to offer sites willing to participate in testing. No contractors are used.

The following is a list of the individuals (and their affiliation at the time of their participation) serving on the workgroup and contributing to this measure:

AAAHC: Naomi Kuznets, PhD
Ambulatory Surgery Foundation: Debra Stinchcomb, BSN, CASC, David Shapiro, MD,
Sarah Martin, RN, BS, CASC and Marian Lowe

AMSURG: Deby Samuels, Lorri Smith RN, BSN and Linda Brooks-Belli AOA/HFAP: Monda Shaver, RN, BSN, CPHIT and Susan Lautner, RN, BSN, MSHL AORN: Bev Kirchner BSN, CNOR, CASC and Bonnie Denholm, RN, MS, CNOR ASCOA: Ann Geier RN, MS, CNOR, CASC ASC Quality Collaboration: Donna Slosburg, BSN, LHRM, CASC HCA: Kathy Wilson The Joint Commission: Michael Kulczycki and Kathleen Domzalski NATIONAL: Rhonda Arnwine, MBA and Terry Hawes, RN, BHA Novamed: Cassandra Speier NUETERRA: Rachelle Babin RN, BSN Surgical Care Affiliates: Kim Wood, MD Symbion: Steve Whitmore and Gina Throneberry RN, MBA, CASC USPI: David Zarin, MD, Julie Gunderson RN, MM, CPHQ and Clint Chain, RN, BSN
Ad.2 If adapted, provide name of original measure: Not adapted **Ad.3-5 If adapted, provide original specifications URL or attachment**
Measure Developer/Steward Updates and Ongoing Maintenance **Ad.6 Year the measure was first released:** 2007 **Ad.7 Month and Year of most recent revision:** 12, 2010 **Ad.8 What is your frequency for review/update of this measure?** Annually, or more frequently if indicated **Ad.9 When is the next scheduled review/update for this measure?** 12, 2011
Ad.10 Copyright statement/disclaimers: None
Ad.11 -13 Additional Information web page URL or attachment:
Date of Submission (*MM/DD/YY*)**:** 03/28/2011

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0367 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Post operative Wound Dehiscence (PDI 11)
De.2 **Brief description of measure:** Percentage of abdominopelvic surgery cases with reclosure of postoperative disruption of abdominal wall.
1.1-2 **Type of Measure:** Outcome De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** Pediatric Patient Safety for Selected Indicators composite (NQF #0532)
De.4 **National Priority Partners Priority Area:** Population health, Safety De.5 **IOM Quality Domain**: Effectiveness, Safety De.6 **Consumer Care Need:** Getting better

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least	**B** Y☐

every 3 years. Yes, information provided in contact section	N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Based on two-stage review of randomly selected deaths, Hannan et al. reported that cases with a secondary diagnosis of wound disruption were 3.0 times more likely to have received care that departed from professionally recognized standards than cases without that code (4.3% versus 1.7%), after adjusting for patient demographic, geographic, and hospital characteristics. [1] 1a.4 **Citations for Evidence of High Impact:** Updated citations will be presented in the May Steering Committee meeting [1] Hannan EL, Bernard HR, O'Donnell JF, Kilburn H, Jr. A methodology for targeting hospital cases for quality of care record reviews. Am J Public Health 1989;79(4):430-6.	**1a** C☐ P☐ M☐ N☐
1b. Opportunity for Improvement 1b.1 **Benefits (improvements in quality) envisioned by use of this measure:** Postoperative wound dehiscence can be easily and accurately measured using administrative data. Moreover, these cases often represent a significant deviation from normal standards of care. Identifying them can represent both a useful metric for measuring quality as well quality improvement. 1b.2 **Summary of data demonstrating performance gap (variation or overall poor performance) across**	**1b** C☐ P☐ M☐ N☐

providers:
Adjusted per 1,000 rates by patient/hospital characteristics, 2007

Estimate	Standard error	Age: pediatric conditions
0.790	0.163	0-4
1.427	0.178	5-9
1.802	0.160	10-14
1.111	0.239	15-17

Estimate	Standard error	Gender
1.233	0.135	Male
0.943	0.137	Female

Estimate	Standard error	Median income of patient´s ZIP code
1.126	0.159	First quartile (lowest income)
1.136	0.180	Second quartile
0.938	0.193	Third quartile
1.072	0.216	Fourth quartile (highest income)

Estimate	Standard error	Location of patient residence (NCHS)
0.884	0.163	Large central metropolitan
1.120	0.182	Large fringe metropolitan
1.022	0.218	Medium metropolitan
1.831	0.303	Small metropolitan
1.068	0.285	Micropolitan
*	*	Not metropolitan or micropolitan

Estimate	Standard error	Expected payment source
1.126	0.143	Private insurance
*	*	Medicare
1.094	0.127	Medicaid
*	*	Other insurance
*	*	Uninsured / self-pay / no charge

Estimate	Standard error	Hospital Ownership/control
0.997	0.107	Private, not-for-profit
*	*	Private, for-profit
1.787	0.226	Public

Estimate	Standard error	Teaching status
1.215	0.112	Teaching
0.795	0.160	Nonteaching

Estimate	Standard error	Location of hospital
1.012	0.135	Large central metropolitan
0.900	0.192	Large fringe metropolitan
0.939	0.209	Medium metropolitan
2.286	0.340	Small metropolitan
*	*	Micropolitan
*	*	Not metropolitan or micropolitan

Estimate	Standard error	Bed size of hospital

*	*	Less than 100
1.401	0.176	100 - 299
1.046	0.172	300 - 499
0.965	0.143	500 or more

1b.3 Citations for data on performance gap:
See the following report for a complete treatment of the methodology: "Methods: Applying AHRQ Quality Indicators to Healthcare Cost and Utilization Project (HCUP) Data for the National Healthcare Quality Report" [URL: http://hcupnet.ahrq.gov/QI%20Methods.pdf?JS=Y]

1b.4 Summary of Data on disparities by population group:
Several results are discussed below. Also, 1b2 notes results in regard to age, gender and metropolitan and micropolitan

1) Estimate 2) Standard error 3) P-value: Relative to marked group-c 4) P-value:
2007 relative to 2006

Median income of patient´s ZIP code:
First quartile (lowest income) 1.126 0.159 0.841 0.000
Second quartile 1.136 0.180 0.820 0.000
Third quartile 0.938 0.193 0.642 0.327
Fourth quartile (highest income)c 1.072 0.216 DNC

Expected payment source:
Private insurancec 1.126 0.143 0.201
Medicare * * * DNC
Medicaid 1.094 0.127 0.869 0.001
Other insurance * * * DNC
Uninsured / self-pay / no charge * * * DNC
Reference:
http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=B9C034EA70FA88A4&Form=SelPDIs1&JS=Y&Action=%3E%3ENext%3E%3E&_QITables=PDI11

RACE/ETHNICITY	Rate per 1,000
White	1.09
Black	1.37
Hispanic	0.87
Asian and NH/PI	0.65
Amer Indian/AN	1.32
Other	0.92

Source: 2008 State Inpatient Databases (SID) (N=39,963)

1b.5 Citations for data on Disparities:
AHRQ 2007 Nationwide Inpatient Sample (NIS) with 800 hospitals and 7 million discharges

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Based on two-stage review of randomly selected deaths, Hannan et al. reported that cases with a secondary diagnosis of wound disruption were 3.0 times more likely to have received care that departed from professionally recognized standards than cases without that code (4.3% versus 1.7%), after adjusting for patient demographic, geographic, and hospital characteristics. [1]

Reference:
[1] Hannan EL, Bernard HR, O'Donnell JF, Kilburn H, Jr. A methodology for targeting hospital cases for quality of care record reviews. Am J Public Health 1989;79(4):430-6.

1c
C☐
P☐
M☐
N☐

1c.2-3. Type of Evidence: Expert opinion, Systematic synthesis of research

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
Based on two-stage review of randomly selected deaths, Hannan et al. reported that cases with a secondary diagnosis of wound disruption were 3.0 times more likely to have received care that departed from professionally recognized standards than cases without that code (4.3% versus 1.7%), after adjusting for patient demographic, geographic, and hospital characteristics. [1]
Reference:
[1] Hannan EL, Bernard HR, O'Donnell JF, Kilburn H, Jr. A methodology for targeting hospital cases for quality of care record reviews. Am J Public Health 1989;79(4):430-6.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**
Testing, rating, and review were conducted by the project team. A full report on the literature review and empirical evaluation can be found in Refinement of the HCUP Quality Indicators by the UCSF-Stanford EPC, Detailed coding information for each QI is provided in the document Prevention Quality Indicators Technical Specifications. Rating of performance on empirical evaluations, ranged from 0 to 26. The scores were intended as a guide for summarizing the performance of each indicator on four empirical tests of precision (signal variance, area-level share, signal ratio, and R-squared) and five tests of minimum bias (rank correlation, top and bottom decile movement, absolute change, and change over two deciles), as described in the previous section.

1c.6 Method for rating evidence: The project team conducted empirical analyses to explore the frequency and variation of the indicators, the potential bias, based on limited risk adjustment, and the relationship between indicators. The data sources used in the empirical analyses were the 1997 Florida State Inpatient Database (SID) for initial testing and development and the 1997 HCUP State Inpatient Database for 19 States (referred to in this guide as the HCUP SID) for the final empirical analyses.
All potential indicators were examined empirically by developing and conducting statistical tests for precision, bias, and relatedness of indicators. Three different estimates of hospital performance were calculated for each indicator:

1. The raw indicator rate was calculated using the number of adverse events in the numerator divided by the number of discharges in the population at risk by hospital.
2. The raw indicator was adjusted to account for differences among hospitals in age, gender, modified DRG, and comorbidities.
- Adjacent DRG categories that were separated by the presence or absence of comorbidities or complications were collapsed to avoid adjusting for the complication being measured. Most of the super-Major Diagnostic Category (MDC) DRG categories were excluded for the same reason.
- APR-DRG risk adjustment was not implemented because removing applicable complications from each indicator was beyond the scope of this project.
- The ICD-9-CM codes used to define comorbidity categories were modified to exclude conditions likely to represent potentially preventable complications in certain settings.
- "Acute on chronic" comorbidities were captured so that some patients with especially severe comorbidities would not be mislabeled as not having conditions of interest.
- Comorbidities in obstetric patients were added.
- 3. Multivariate signal extraction methods were applied to adjust for reliability by estimating the amount of "noise" (i.e., variation due to random error) relative to the amount of "signal" (i.e., systematic variation in hospital performance or reliability) for each indicator.

Similar reliability adjustment has been used in the literature for similar purposes.40 41 The project team constructed a set of statistical tests to examine precision, bias, and relatedness of indicators for all accepted Provider-level Indicators, and precision and bias for all accepted Area-level Indicators. It should be noted that rates based on fewer than 30 cases in the numerator or the denominator are not reported. This exclusion rule serves two purposes:
- It eliminates unstable estimates based on too few cases.
- It helps protect the identities of hospitals and patients.

1c.7 Summary of Controversy/Contradictory Evidence: Since this complication is relatively rare in children it is difficult to note any increased risk in each of the potentially high-risk stratum, but children with short

bowel syndrome appear to be at higher risk with the relative risk over 15 as compared with all patients in the denominator. Children with spleen disorders also had an elevated risk, with a relative risk of nearly 3.5. Since the desire was to develop a stratification or classification scheme for immunocompromised patients that could be applied to a number of indicators, results from other indicators were also considered. Consistency across indicators and modules is desired, and so in consideration of stratification of pediatric indicators, we also considered the impact of these comorbidities on an adult population. Some conditions that were rare in children are less rare in adults and the impact on these complications more apparent. Reference: http://www.qualityindicators.ahrq.gov/downloads/pdi/pdi_measures_v31.pdf See the following for a complete treatment of the topic: http://www.qualityindicators.ahrq.gov/downloads/pdi/pdi_guide_v31.pdf Note: The Literature Review Findings column summarizes evidence specific to each potential concern on the link between the PDIs and quality of care, as described in step 3 above. A question mark (?) indicates that the concern is theoretical or suggested, but no specific evidence was found in the literature. A check mark indicates that the concern has been demonstrated in the literature. **1c.8 Citations for Evidence (*other than guidelines*):** Updated citations will be presented in the May Steering Committee meeting http://www.qualityindicators.ahrq.gov/downloads/pdi/pdi_guide_v31.pdf **1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number*):** Despite advances in preoperative care, the rate of surgical wound dehiscence has not decreased in recent years; 1%-3% of patients experience wound dehiscence. A nursing goal for the postoperative patient is always prevention of wound dehiscence. Recognition of risk factors is essential. For example, older males with ascites are at very high risk. Prevention of wound infection and mechanical stress on the incision are important. **1c.10 Clinical Practice Guideline Citation:** http://www.medsurgnursing.net/ceonline/2008/article10296301.pdf **1c.11 National Guideline Clearinghouse or other URL:** Not Applicable. **1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom*):** Not Applicable. **1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF*):** Not Applicable. **1c.14 Rationale for using this guideline over others:** No competing measures found.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	

S.1 Do you have a web page where current detailed measure specifications can be obtained?
S.2 If yes, provide web page URL:

2a. Precisely Specified

2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*):
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.

2a.2 Numerator Time Window (*The time period in which cases are eligible for inclusion in the numerator*):
Time window can be determined by user, but is generally a calendar year.

2a.3 Numerator Details (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*):
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.

ICD-9-CM Abdominal Wall Reclosure procedure codes:
5461
RECLOSURE OF POSTOPERATIVE DISRUPTION OF ABDOMINAL WALL

2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured*):
All abdominopelvic surgical discharges under age 18.

2a.5 Target population gender: Female, Male
2a.6 Target population age range: Age less than 18 years

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator*):
Time window can be determined by user, but is generally a calendar year.

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions*):
All abdominopelvic surgical discharges under age 18.

ICD-9-CM Abdominopelvic procedure codes:
1731
LAPAROSCOPIC MULTIPLE SEGMENTAL RESECTION OF LARGE INTESTINE OCT08-
1732
LAPAROSCOPIC CECECTOMY OCT08-
1733
LAPAROSCOPIC RIGHT HEMICOLECTOMY OCT08-
1734
LAPAROSCOPIC RESECTION OF TRANSVERSE COLON OCT08-
1735
LAPAROSCOPIC LEFT HEMICOLECTOMY OCT08-
1736
LAPAROSCOPIC SIGMOIDECTOMY OCT08-
1739
OTHER LAPAROSCOPIC PARTIAL EXCISION OF LARGE INTESTINE OCT08-
3804
INCISION OF AORTA
3806
INCISION OF ABDOMINAL ARTERIES
3807
INCISION OF ABDOMINAL VEINS
3814

2a-specs
C☐
P☐
M☐
N☐

ENDARTERECTOMY OF AORTA
3816
ENDARTERECTOMY OF ABDOMINAL ARTERIES
3834
RESECTION OF AORTA W/ ANASTOMOSIS
3836
RESECTION OF ABDOMINAL ARTERIES W/ ANASTOMOSIS
3837
RESECTION OF ABDOMINAL VEINS W/ ANASTOMOSIS
3844
RESECTION OF AORTA, ABDOMINAL W/ REPLACEMENT
3846
RESECTION OF ABDOMINAL ARTERIES W/ REPLACEMENT
3847
RESECTION OF ABDOMINAL VEINS W/ REPLACEMENT
3857
LIGATION AND STRIPPING OF VARICOSE VEINS, ABDOMINAL VEINS
3864
OTHER EXCISION OF AORTA, ABDOMINAL
3866
OTHER EXCISION OF ABDOMINAL ARTERIES
3867
OTHER EXCISION OF ABDOMINAL VEINS
3884
OTHER SURGICAL OCCLUSION OF AORTA, ABDOMINAL
3886
OTHER SURGICAL OCCLUSION OF ABDOMINAL ARTERIES
3887
OTHER SURGICAL OCCLUSION OF ABDOMINAL VEINS
391
INTRA-ABDOMINAL VENOUS SHUNT
3924
AORTA-RENAL BYPASS
3925
AORTA-ILIAC-FEMORAL BYPASS
3926
OTHER INTRA-ABDOMINAL VASCULAR SHUNT OR BYPASS
4052
RADICAL EXCISION OF PERIAORTIC LYMPH NODES
4053
RADICAL EXCISION OF ILIAC LYMPH NODES
412
SPLENOTOMY
4133
OPEN BIOPSY OF SPLEEN
4141
MARSUPIALIZATION OF SPLENIC CYST
4142
EXCISION OF LESION OR TISSUE OF SPLEEN
4143
PARTIAL SPLENECTOMY
415
TOTAL SPLENECTOMY
4193
EXCISION OF ACCESSORY SPLEEN
4194
TRANSPLANTATION OF SPLEEN
4195

REPAIR AND PLASTIC OPERATIONS ON SPLEEN
4199
OTHER OPERATIONS ON SPLEEN
4240
ESOPHAGECTOMY, NOS
4241
PARTIAL ESOPHAGECTOMY
4242
TOTAL ESOPHAGECTOMY
4253
INTRATHORACIC ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION OF SMALL BOWEL
4254
OTHER INTRATHORACIC ESOPHAGOENTEROSTOMY
4255
INTRATHORACIC ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION OF COLON
4256
OTHER INTRATHORACIC ESOPHAGOCOLOSTOMY
4263
ANTESTERNAL ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION OF SMALL BOWEL
4264
OTHER ANTESTERNAL ESOPHAGOENTEROSTOMY
4265
ANTESTERNAL ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION OF COLON
4266
OTHER ANTESTERNAL ESOPHAGOCOLOSTOMY
4291
LIGATION OF ESOPHAGEAL VARICES
430
GASTROTOMY
433
PYLOROMYOTOMY
4342
LOCAL EXCISION OF OTHER LESION OR TISSUE OF STOMACH
4349
OTHER DESTRUCTION OF LESION OR TISSUE OF STOMACH
435
PARTIAL GASTRECTOMY W/ ANASTOMOSIS TO ESOPHAGUS
436
PARTIAL GASTRECTOMY W/ ANASTOMOSIS TO DUODENUM
437
PARTIAL GASTRECTOMY W/ ANASTOMOSIS TO JEJUNUM
4381
PARTIAL GASTRECTOMY W/ JEJUNA TRANSPOSITION
4389
OTHER PARTIAL GASTRECTOMY
4391
TOTAL GASTRECTOMY W/ INTESTINAL INTERPOSITION
4399
OTHER TOTAL GASTRECTOMY
4400
VAGOTOMY, NOS
4401
TRUNCAL VAGOTOMY
4402
HIGHLY SELECTIVE VAGOTOMY
4403
OTHER SELECTIVE VAGOTOMY
4411

TRANSABDOMINAL GASTROSCOPY
4415
OPEN BIOPSY OF STOMACH
4421
DILATION OF PYLORUS BY INCISION
4429
OTHER PYLOROPLASTY
4431
HIGH GASTRIC BYPASS
4439
OTHER GASTROENTEROSTOMY
4440
SUTURE OF PEPTIC ULCER, NOS
4441
SUTURE OF GASTRIC ULCER SITE
4442
SUTURE OF DUODENAL ULCER SITE
445
REVISION OF GASTRIC ANASTOMOSIS
4461
SUTURE OF LACERATION OF STOMACH
4463
CLOSURE OF OTHER GASTRIC FISTULA
4464
GASTROPEXY
4465
ESOPHAGOGASTROPLASTY
4466
OTHER PROCEDURES FOR CREATION OF ESOPHAGOGASTRIC SPHINCTERIC COMPETENCE
4469
OTHER REPAIR OF STOMACH
4491
LIGATION OF GASTRIC VARICES
4492
INTRAOPERATIVE MANIPULATION OF STOMACH
4499**
GASTRIC OPERATION NEC (OCT 04)
4500
INCISION OF INTESTINE, NOS
4501
INCISION OF DUODENUM
4502
OTHER INCISION OF SMALL INTESTINE
4503
INCISION OF LARGE INTESTINE
4531
OTHER LOCAL EXCISION OF LESION OF DUODENUM
4532
OTHER DESTRUCTION OF LESION OF DUODENUM
4533
LOCAL EXCISION OF LESION OR TISSUE OF SMALL INTESTINE, EXCEPT DUODENUM
4534
OTHER DESTRUCTION OF LESION OF SMALL INTESTINE, EXCEPT DUODENUM
4541
EXCISION OF LESION OR TISSUE OF LARGE INTESTINE
4549
OTHER DESTRUCTION OF LESION OF LARGE INTESTINE
4550

ISOLATION OF INTESTINAL SEGMENT, NOS
4551
ISOLATION OF SEGMENT OF SMALL INTESTINE
4552
ISOLATION OF SEGMENT OF LARGE INTESTINE
4561
MULTIPLE SEGMENTAL RESECTION OF SMALL INTESTINE
4562
OTHER PARTIAL RESECTION OF SMALL INTESTINE
4563
TOTAL REMOVAL OF SMALL INTESTINE
4571
MULTIPLE SEGMENTAL RESECTION OF LARGE INTESTINE
4572
CESECTOMY
4573
RIGHT HEMICOLECTOMY
4574
RESECTION OF TRANSVERSE COLON
4575
LEFT HEMICOLECTOMY
4576
SIGMOIDECTOMY
4579
OTHER PARTIAL EXCISION OF LARGE INTESTINE
458
TOTAL INTRA-ABDOMINAL COLECTOMY
4581
LAPAROSCOPIC TOTAL INTRA-ABDOMINAL COLECTOMY OCT08-
4582
OPEN TOTAL INTRA-ABDOMINAL COLECTOMY OCT08-
4583
OTHER AND UNSPECIFIED TOTAL INTRA-ABDOMINAL COLECTOMY OCT08-
4590
INTESTINAL ANASTOMOSIS, NOS
4591
SMALL-TO-SMALL INTESTINAL ANASTOMOSIS
4592
ANASTOMOSIS OF SMALL INTESTINE TO RECTAL STUMP
4593
OTHER SMALL-TO-LARGE INTESTINAL ANASTOMOSIS
4594
LARGE-TO-LARGE INTESTINAL ANASTOMOSIS
4595
ANASTOMOSIS TO ANUS
4601
EXTERIORIZATION OF SMALL INTESTINE
4603
EXTERIORIZATION OF LARGE INTESTINE
4610
COLOSTOMY, NOS
4611
TEMPORARY COLOSTOMY
4613
PERMANENT COLOSTOMY
4620
ILEOSTOMY, NOS
4621

TEMPORARY ILESOSTOMY
4622
CONTINENT ILEOSTOMY
4623
OTHER PERMANENT ILEOSTOMY
4640
REVISION OF INTESTINA STOMA, NOS
4641
REVISION OF STOMA OF SMALL INTESTINE
4642
REPAIR OF PERICOLOSTOMY HERNIA
4643
OTHER REVISION OF STOMA OF LARGE INTESTINE
4650
CLOSURE OF INTESTINAL STOMA, NOS
4651
CLOSURE OF STOMA OF SMALL INTESTINE
4652
CLOSURE OF STOMA OF LARGE INTESTINE
4660
FIXATION OF INTESTINE, NOS
4661
FIXATION OF SMALL INTESTINE TO ABDOMINAL WALL
4662
OTHER FIXATION OF SMALL INTESTINE
4663
FIXATION OF LARGE INTESTINE TO ABDOMINAL WALL
4664
OTHER FIXATION OF LARGE INTESTINE
4672
CLOSURE OF FISTULA OF DUODENUM
4674
CLOSURE OF FISTULA OF SMALL INTESTINE, EXCEPT DUODENUM
4676
CLOSURE OF FISTULA OF LARGE INTESTINE
4680
INTRA-ABDOMINAL MANIPULATION OF INTESTINE, NOS
4681
INTRA-ABDOMINAL MANIPULATION OF SMALL INTESTINE
4682
INTRA-ABDOMINAL MANIPULATION OF LARGE INTESTINE
4691
MYOTOMY OF SIGMOID COLON
4692
MYOTOMY OF OTHER PARTS OF COLON
4693
REVISION OF ANASTOMOSIS OF SMALL INTESTINE
4694
REVISION OF ANASTOMOSIS OF LARGE INTESTINE
4699
OTHER OPERATIONS ON INTESTINES
4709
OTHER APPENDECTOMY
4719
OTHER INCIDENTAL APPENDECTOMY
472
DRAINAGE OF APPENDICEAL ABSCESS
4791

APPENDECTOMY
4792
CLOSURE OF APPENDICEAL FISTULA
4799
OTHER OPERATIONS ON APPENDIX, OTHER
4840
PULL-THROUGH RESECTION OF RECTUM, NOT OTHERWISE SPECIFIED OCT08-
4841
SUBMUCOSAL RESECTION OF RECTUM
4843
OPEN PULL-THROUGH RESECTION OF RECTUM OCT08-
4849
OTHER PULL-THROUGH RESECTION OF RECTUM
4850
ABDOMINOPERINEAL RESECTION OF THE RECTUM, NOS OCT08-
4852
OPEN ABDOMINOPERINEAL RESECTION OF THE RECTUM OCT08-
4859
OTHER ABDOMINOPERINEAL RESECTION OF THE RECTUM OCT08-
4875
ABDOMINAL PROCTOPEXY
500
HEPATOTOMY
5012
OPEN BIOPSY OF LIVER
5021
MARSUPIALIZATION OF LESION OF LIVER
5022
PARTIAL HEPATECTOMY
5023
OPN ABLTN LIVER LES/TISS OCT06-
5026
ABLTN LIVER LES/TISS NEC OCT06-
5029
OTHER DESTRUCTION OF LESION OF LIVER
503
LOBECTOMY OF LIVER
504
TOTAL HEPATECTOMY
5051
AUXILIARY LIVER TRANSPLANT
5059
OTHER TRANSPLANT OF LIVER
5069
OTHER REPAIR OF LIVER
5103
OTHER CHOLECYSTOSTOMY
5104
OTHER CHOLECYSTOTOMY
5113
OPEN BIOPSY OF GALLBLADDER OR BILE DUCTS
5121
OTHER PARTIAL CHOLECYSTECTOMY
5122
CHOLECYSTECTOMY
5131
ANASTOMOSIS OF GALLBLADDER TO HEPATIC DUCTS
5132

ANASTOMOSIS OF GALLBLADDER TO INTESTINE
5133
ANASTOMOSIS OF GALLBLADDER TO PANCREAS
5134
ANASTOMOSIS OF GALLBLADDER TO STOMACH
5135
OTHER GALLBLADDER ANASTOMOSIS
5136
CHOLEDOCHOENTEROSTOMY
5137
ANASTOMOSIS OF HEPATIC DUCT TO GASTROINTESTINAL TRACT
5139
OTHER BILE DUCT ANASTOMOSIS
5141
COMMON DUCT EXPLORATION FOR REMOVAL OF CALCULUS
5142
COMMON DUCT EXPLORATION FOR RELIEF OF OTHER OBSTRUCTION
5143
INSERTION OF CHOLEDOCHOHEPATIC TUBE FOR DECOMPRESSION
5149
INCISION OF OTHER BILE DUCTS FOR RELIEF OF OBSTRUCTION
5151
EXPLORATION OF COMMON DUCT
5159
INCISION OF OTHER BILE DUCT
5161
EXCISION OF CYSTIC DUCT REMNANT
5162
EXCISION OF AMPULLA OF VATER W/ REIMPLANTATION OF COMMON DUCT
5163
OTHER EXCISION OF COMMON DUCT
5169
EXCISION OF OTHER BILE DUCT
5171
SIMPLE SUTURE OF COMMON BILE DUCT
5172
CHOLEDOCHOPLASTY
5179
REPAIR OF OTHER BILE DUCTS
5181
DILATION OF SPHINCTER OF ODDI
5182
PANCREATIC SPHINCTEROTOMY
5183
PANCREATIC SPHINCTEROPLASTY
5189
OTHER OPERATIONS ON SPHINCTER OF ODDI
5192
CLOSURE OF CHOLECYSTOSTOMY
5193
CLOSURE OF OTHER BILIARY FISTULA
5194
REVISION OF ANASTOMOSIS OF BILIARY TRACT
5195
REMOVAL OF PROSTHETIC DEVICE FROM BILE DUCT
5199
OTHER OPERATIONS ON BILIARY TRACT
5201

DRAINAGE OF PANCREATIC CYST BY CATHETER
5209
OTHER PANCREATOTOMY
5212
OPEN BIOPSY OF PANCREAS
5222
OTHER EXCISION OR DESTRUCTION OF LESION OR TISSUE OF PANCREAS OR PANCREATIC DUCT
523
MARSUPIALIZATION OF PANCREATIC CYST
524
INTERNAL DRAINAGE OF PANCREATIC CYST
5251
PROXIMAL PANCREATECTOMY
5252
DISTAL PANCREATECTOMY
5253
RADICAL SUBTOTAL PANCREATECTOMY
5259
OTHER PARTIAL PANCREATECTOMY
526
TOTAL PANCREATECTOMY
527
RADICAL PANCREATICODUODENECTOMY
5280
PANCREATIC TRANSPLANT, NOS
5281
REIMPLANTATION
5282
HOMOTRANSPLANT OF PANCREAS
5283
HETEROTRANSPLANT OF PANCREAS
5292
CANNULATION OF PANCREATIC DUCT
5295
OTHER REPAIR OF PANCREAS
5296
ANASTOMOSIS OF PANCREAS
5299
OTHER OPERATIONS ON PANCREAS
5300
UNILATERAL REPAIR OF INGUINAL HERNIA, NOS
5301
REPAIR OF DIRECT INGUINAL HERNIA
5302
REPAIR OF INDIRECT INGUINAL HERNIA
5303
REPAIR OF DIRECT INGUINAL HERNIA W/ GRAFT OR PROSTHESIS
5304
REPAIR OF INDIRECT INGUINAL HERNIA W/ GRAFT OR PROSTHESIS
5305
REPAIR OF INGUINAL HERNIA W/ GRAFT OR PROSTHESIS, NOS
5310
BILATERAL REPAIR OF INGUINAL HERNIA, NOS
5311
BILATERAL REPAIR OF DIRECT INGUINAL HERNIA
5312
BILATERAL REPAIR OF INDIRECT INGUINAL HERNIA
5313

BILATERAL REPAIR OF INGUINAL HERNIA, ONE DIRECT AND ONE INDIRECT
5314
BILATERAL REPAIR OF DIRECT INGUINAL HERNIA W/ GRAFT OR PROSTHESIS
5315
BILATERAL REPAIR OF INDIRECT INGUINAL HERNIA W/ GRAFT OR PROSTHESIS
5316
BILATERAL REPAIR OF INGUINAL HERNIA, ONE DIRECT AND ONE INDIRECT, W/ GRAFT OR PROSTHESIS
5317
BILATERAL INGUINAL HERNIA REPAIR W/ GRAFT OR PROSTHESIS, NOS
5321
UNILATERAL REPAIR OF FEMORAL HERNIA
5329
OTHER UNILATERAL FEMORAL HERNIORRHAPHY
5331
BILATERAL REPAIR OF FEMORAL HERNIA W/ GRAFT OR PROSTHESIS
5339
OTHER BILATERAL FEMORAL HERNIORRHAPHY
5341
REPAIR OF UMBILICAL HERNIA W/ PROSTHESIS
5349
OTHER UMBILICAL HERNIORRHAPHY
5351
INCISIONAL HERNIA REPAIR
5359
REPAIR OF OTHER HERNIA OF ANTERIOR ABDOMINAL WALL
5361
INCISIONAL HERNIA REPAIR W/ PROSTHESIS
5369
REPAIR OF OTHER HERNIA OF ANTERIOR ABDOMINAL WALL W/ PROSTHESIS
537
REPAIR OF DIAPHRAGMATIC HERNIA, ABDOMINAL APPROACH
5375
REPAIR OF DIAPHRAGMATIC HERNIA, ABDOMINAL APPROACH, NOS OCT08-
540
INCISION OF ABDOMINAL WALL
5411
EXPLORATORY LAPAROTOMY
5419
OTHER LAPAROTOMY
5422
BIOPSY OF ABDOMINAL WALL OR UMBILICUS
5423
BIOPSY OF ABDOMINAL WALL OR UMBILICUS
543
EXCISION OR DESTRUCTION OF LESION OR TISSUE OF ABDOMINAL WALL OR UMBILICUS
544
EXCISION OR DESTRUCTION OF PERITONEAL TISSUE
5459
OTHER LYSIS OF PERITONEAL ADHESIONS
5463
OTHER SUTURE OF ABDOMINAL WALL
5464
SUTURE OF PERITONEUM
5471
REPAIR OF GASTROSCHISIS
5472
OTHER REPAIR OF ABDOMINAL WALLS
5473

OTHER REPAIR OF PERITONEUM
5151
EXPLORATION OF COMMON DUCT
5159
INCISION OF OTHER BILE DUCT
5161
EXCISION OF CYSTIC DUCT REMNANT
5162
EXCISION OF AMPULLA OF VATER W/ REIMPLANTATION OF COMMON DUCT
5163
OTHER EXCISION OF COMMON DUCT
5169
EXCISION OF OTHER BILE DUCT
5171
SIMPLE SUTURE OF COMMON BILE DUCT
5172
CHOLEDOCHOPLASTY
5179
REPAIR OF OTHER BILE DUCTS
5181
DILATION OF SPHINCTER OF ODDI
5182
PANCREATIC SPHINCTEROTOMY
5183
PANCREATIC SPHINCTEROPLASTY
5189
OTHER OPERATIONS ON SPHINCTER OF ODDI
5192
CLOSURE OF CHOLECYSTOSTOMY
5193
CLOSURE OF OTHER BILIARY FISTULA
5194
REVISION OF ANASTOMOSIS OF BILIARY TRACT
5195
REMOVAL OF PROSTHETIC DEVICE FROM BILE DUCT
5199
OTHER OPERATIONS ON BILIARY TRACT
5201
DRAINAGE OF PANCREATIC CYST BY CATHETER
5209
OTHER PANCREATOTOMY
5212
OPEN BIOPSY OF PANCREAS
5222
OTHER EXCISION OR DESTRUCTION OF LESION OR TISSUE OF PANCREAS OR PANCREATIC DUCT
523
MARSUPIALIZATION OF PANCREATIC CYST
524
INTERNAL DRAINAGE OF PANCREATIC CYST
5251
PROXIMAL PANCREATECTOMY
5252
DISTAL PANCREATECTOMY
5253
RADICAL SUBTOTAL PANCREATECTOMY
5259
OTHER PARTIAL PANCREATECTOMY
526

TOTAL PANCREATECTOMY
527
RADICAL PANCREATICODUODENECTOMY
5280
PANCREATIC TRANSPLANT, NOS
5281
REIMPLANTATION
5282
HOMOTRANSPLANT OF PANCREAS
5283
HETEROTRANSPLANT OF PANCREAS
5292
CANNULATION OF PANCREATIC DUCT
5295
OTHER REPAIR OF PANCREAS
5296
ANASTOMOSIS OF PANCREAS
5299
OTHER OPERATIONS ON PANCREAS
5300
UNILATERAL REPAIR OF INGUINAL HERNIA, NOS
5301
REPAIR OF DIRECT INGUINAL HERNIA
5302
REPAIR OF INDIRECT INGUINAL HERNIA
5303
REPAIR OF DIRECT INGUINAL HERNIA W/ GRAFT OR PROSTHESIS
5304
REPAIR OF INDIRECT INGUINAL HERNIA W/ GRAFT OR PROSTHESIS
5305
REPAIR OF INGUINAL HERNIA W/ GRAFT OR PROSTHESIS, NOS
5310
BILATERAL REPAIR OF INGUINAL HERNIA, NOS
5311
BILATERAL REPAIR OF DIRECT INGUINAL HERNIA
5312
BILATERAL REPAIR OF INDIRECT INGUINAL HERNIA
5313
BILATERAL REPAIR OF INGUINAL HERNIA, ONE DIRECT AND ONE INDIRECT
5314
BILATERAL REPAIR OF DIRECT INGUINAL HERNIA W/ GRAFT OR PROSTHESIS
5315
BILATERAL REPAIR OF INDIRECT INGUINAL HERNIA W/ GRAFT OR PROSTHESIS
5316
BILATERAL REPAIR OF INGUINAL HERNIA, ONE DIRECT AND ONE INDIRECT, W/ GRAFT OR PROSTHESIS
5317
BILATERAL INGUINAL HERNIA REPAIR W/ GRAFT OR PROSTHESIS, NOS
5321
UNILATERAL REPAIR OF FEMORAL HERNIA
5329
OTHER UNILATERAL FEMORAL HERNIORRHAPHY
5331
BILATERAL REPAIR OF FEMORAL HERNIA W/ GRAFT OR PROSTHESIS
5339
OTHER BILATERAL FEMORAL HERNIORRHAPHY
5341
REPAIR OF UMBILICAL HERNIA W/ PROSTHESIS
5349

OTHER UMBILICAL HERNIORRHAPHY
5351
INCISIONAL HERNIA REPAIR
5359
REPAIR OF OTHER HERNIA OF ANTERIOR ABDOMINAL WALL
5361
INCISIONAL HERNIA REPAIR W/ PROSTHESIS
5369
REPAIR OF OTHER HERNIA OF ANTERIOR ABDOMINAL WALL W/ PROSTHESIS
537
REPAIR OF DIAPHRAGMATIC HERNIA, ABDOMINAL APPROACH
5375
REPAIR OF DIAPHRAGMATIC HERNIA, ABDOMINAL APPROACH, NOS OCT08-
540
INCISION OF ABDOMINAL WALL
5411
EXPLORATORY LAPAROTOMY
5419
OTHER LAPAROTOMY
5422
BIOPSY OF ABDOMINAL WALL OR UMBILICUS
5423
BIOPSY OF ABDOMINAL WALL OR UMBILICUS
543
EXCISION OR DESTRUCTION OF LESION OR TISSUE OF ABDOMINAL WALL OR UMBILICUS
544
EXCISION OR DESTRUCTION OF PERITONEAL TISSUE
5459
OTHER LYSIS OF PERITONEAL ADHESIONS
5463
OTHER SUTURE OF ABDOMINAL WALL
5464
SUTURE OF PERITONEUM
5471
REPAIR OF GASTROSCHISIS
5472
OTHER REPAIR OF ABDOMINAL WALLS
5473
OTHER REPAIR OF PERITONEUM

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):** 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 imtermediate-risk immuocompromised state
• with any procedure code for transplant
• with hepatic 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)

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
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 imtermediate-risk immuocompromised state
• with any procedure code for transplant
• with hepatic 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)

See Pediatric Quality Indicators Appendices:
• Appendix F – High-risk Immunocompromised States
• Appendix G – Intermediate-risk Immunocompromised States
• Appendix I – Definitions of, Neonate, Newborn, Normal Newborn, and Outborn
• Appendix L – Low Birth Weight Categories
PDI appendices appear at this link:
http://www.qualityindicators.ahrq.gov/downloads/pdi/TechSpecs42/PDI%20Appendices.pdf

ICD-9-CM Transplant procedure codes:
335
LUNG TRANSPLANT
3350
LUNG TRANSPLANT NOS
3351
UNILAT LUNG TRANSPLANT
3352
BILAT LUNG TRANSPLANT
336
COMBINED HEART-LUNG TRANSPLANTATION
375
HEART TRANSPLANTATION
3751
HEART TRANSPLANTATION
410
OPERATIONS ON BONE MAROW AND SPLEEN
4100
BONE MARROW TRNSPLNT NOS
4101
AUTO BONE MT W/O PURG
4102
ALO BONE MARROW TRNSPLNT
4103
ALLOGRFT BONE MARROW NOS
4104
AUTO HEM STEM CT W/O PUR
4105
ALLO HEM STEM CT W/O PUR
4106
CORD BLD STEM CELL TRANS
4107
AUTO HEM STEM CT W PURG
4108
ALLO HEM STEM CT W PURG
4109

AUTO BONE MT W PURGING
5051
AUXILIARY LIVER TRANSPL
5059
LIVER TRANSPLANT NEC
5280
PANCREATIC TRANSPLANT, NOS
5281
REIMPLANTATION OF PANCREATIC TISSUE
5282
REIMPLANTATION OF PANCREATIC TISSUE
5283
HETEROTRANSPLANT OF PANCREAS
5285
ALLOTRANSPLANTATION OF CELLS OF ISLETS OF LNGERHANS
5286
TRANSPLANTATION OF CELLS OF ISLETS OF LANGERHANS, NOS
5569
OTHER KIDNEY TRANSPLANTATION

ICD-9-CM Hepatic Failure Diagnosis Codes – Part I
5712
ALCOHOLIC CIRRHOSIS OF LIVER
5715
CIRRHOSIS OF LIVER WITHOUT MENTION OF ALCOHOL
5716
BILIARY CIRRHOSIS
AND
ICD-9-CM Hepatic Failure Diagnosis Codes – Part II
5722
HEPATIC COMA
5724
HEPATORENAL SYNDROME
ICD-9-CM Gastroschisis or Umbilical Hernia Repair procedure codes
5341
REPAIR OF UMBILICAL HERNIA WITH PROSTHESIS
5349
OTHER UMBILICAL HERNIORRHAPHY
5471
REPAIR OF GASTROSCHISIS

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
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 Stratfication
Surgical Class DRG
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
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
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551

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552
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558
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002
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009
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020
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021
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022
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023
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029
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042
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218
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219

CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W MCC
220
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221
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223
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224
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225
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241
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246
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248
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249
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250
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251
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529
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530
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535
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536
CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK
537
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538
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543
CRANIOTOMY W MAJOR DEVICE IMPLANT OR ACUTE COMPLEX CNS PRINCIPAL DIAGNOSIS
544
MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY
545
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CORONARY BYPASS W/O CARDIAC CATH W MAJOR CV DX
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551
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552
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558
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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
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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
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032
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035
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115
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130
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132
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133
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220
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221
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223
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233
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234
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236
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237
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238
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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
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244
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245

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246
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247
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248
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251
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252
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258
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456
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457
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458
SPINAL FUS EXC CERV W SPINAL CURV/MALIG/INFEC OR 9+ FUS W/O CC/MCC
459
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460

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461
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463
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464
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466
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467
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468
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471
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472
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474
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475
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477
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483
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486
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487
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488
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489
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490
BACK & NECK PROC EXC SPINAL FUSION W CC/MCC OR DISC DEVICE/NEUROSTIM
491
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494
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495
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496
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513
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515
OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W MCC
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585
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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
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
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
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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
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
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
741
UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W/O CC/MCC
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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
MS-DRG
TITLE
574
SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W CC

2a.12-13 Risk Adjustment Type: Risk adjustment method widely or commercially available

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
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.

2a.15-17 Detailed risk model available Web page URL or attachment: URL None
http://www.qualityindicators.ahrq.gov/downloads/pdi/PDI%20Risk%20Adjustment%20Tables%20(Version%204%202).pdf

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Lower score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
[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/PDI_download.htm

2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:**
Significance testing is not prescribed by the software. Users may calculate a confidence interval for the risk-adjusted rates and a posterior probability interval for the smoothed rates at a 95% or 99% level. Users may define the relevant benchmark and the methods of discriminating performance according to their application.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
Not applicable

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Electronic administrative data/claims

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
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.

2a.26-28 Data source/data collection instrument reference web page URL or attachment: URL None
http://www.qualityindicators.ahrq.gov/software.htm

2a.29-31 Data dictionary/code table web page URL or attachment: URL None
http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)*: AHRQ 2003 Kid´s Inpatient Database (KID) with 3 million discharges

2b.2 Analytic Method *(type of reliability & rationale, method for testing)*:
Literature review, clinical panels and empirical analysis

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
The incidence of post-operative wound dehiscence was investigated in pediatric patients in several studies (e.g., 1.25 per 1,000 discharges at 0-17 years, 1.74 at 18-44 years, 2.65 at 45-64 years, and 3.77 at 65 or more years).(10) HCUP data from 1997 showed a rate of 2.9 per 10,000 discharges for a broader definition of post-operative wound disruption (based on either a diagnosis code or a procedure code). Using HCUP data from 2000, a rate of 8 per 10,000 discharges was seen for the complication of postoperative wound dehiscence in pediatric patients 0-18 years of age.(11, 17) Additionally, it was found that this complication resulted in an increased mean length of stay (by 21.1 days) and $76,737 in increased charges in affected patients, with 5.7 times higher odds of in-hospital mortality (after adjusting for age, gender, expected payer, up to 30 comorbidities, and multiple hospital characteristics, including ownership, teaching status, nursing expertise, urban location, bed size, pediatricvolume, coding intensity, ICU bed percentage, and surgical discharge percentage).(11) Sedman et al found a range of observed rates for post-operative wound dehiscence from 1.7 per 1,000 in 2002 to 1.2 per 10,000 in 1999 using NACHRI data (i.e., a slight downward trend over time).(12)

2b C☐ P☐ M☐ N☐

2c. Validity testing

2c.1 Data/sample *(description of data/sample and size)*: The Agency for Healthcare Research and Quality pediatric quality indicator algorithms were applied to 76 children´s hospital´s discharge abstract data (1,794,675 discharges) from 2003 to 2005. [1]

Agency for Healthcare Research and Quality pediatric-specific quality indicators were used to identify adverse events in 431524 discharges from 38 freestanding, academic, not-for-profit, tertiary care pediatric hospitals in the United States participating in the Pediatric Health Information System database in 2006. [2]

2c.2 Analytic Method *(type of validity & rationale, method for testing)*:
Subsequently, clinicians from 28 children´s hospitals reviewed 1703 charts in which complications had been identified. They answered questions as to correctness of secondary diagnoses that were associated with the indicator, whether a complication was already present on admission, and whether that complication was

2c C☐ P☐ M☐ N☐

preventable, nonpreventable, or uncertain. [1]

In this study, we matched each case subject with 3 control subjects within the same all-patient refined diagnosis-related group (APR-DRG [3M Corporation, St Paul, MN]) severity level, age group (as defined by the American Academy of Pediatrics as <30 days, 30–364 days, 1–4 years, 5–12 years, 13–17 years, and 18 years), and hospital. If >3 control subjects were available on the basis of these restrictions, we used propensity scores to minimize the bias in selecting matched control subjects. Statistical significance for the difference in use between the case and control subjects was determined by using Wilcoxon´s signed rank test, a nonparametric alternative to the 1-sample t test. [2]

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
PD 11: Postoperative Wound Dehiscence (n102) In the 3-year period there were 102 cases, and 10% were POA. Clinician reviewers thought that 66% of the remaining events were not clearly preventable. There were a number of patients with diaphragmatic hernia in which the wound was left open purposefully and was closed in stages when there was decreased swelling. Several clinicians noted that dehiscence occurred when children has severe crying and coughing, sometime occurring after extubation, and concluded that better sedation and pain management might have prevented the dehiscence. [1]

Age was the only demographic factor with any statistically significant differences between matched and unmatched case subjects for accidental puncture and laceration. The demographic variables race, gender, payer, disposition, and census region had no differences in any of the PDIs. The occurrence of Postoperative wound dehiscence was not associated with a statistically significant increase in LOS or excess charges. [2]

References
[1] Scanlon MC, Harris JM 2nd, Levy F, Sedman A. Evaluation of the agency for healthcare research and quality pediatric quality indicators. Pediatrics. 2008 Jun;121(6):e1723-31. Epub 2008 May 12. PMID: 18474532.
[2] Kronman MP, Hall M, Slonim AD, Shah SS. Charges and lengths of stay attributable to adverse patient-care events using pediatric-specific quality indicators: a multicenter study of freestanding children´s hospitals. Pediatrics. 2008 Jun;121(6):e1653-9. PMID: 18519468; DOI: http://dx.doi.org/10.1542/peds.2007-2831.

2d. Exclusions Justified

2d.1 Summary of Evidence supporting exclusion(s):
Exclusions remove cases where the outcome of interest is less likely to be preventable or more likely to be preventable or with no or very low risk

2d.2 Citations for Evidence:
Updated citations will be presented in the May Steering Committee meeting

Measures of Pediatric Health Care Quality Based on Hospital Administrative Data, The Pediatric Quality Indicators. Ver 3.1 March 2007
http://qualityindicators.ahrq.gov/downloads/pdi/pdi_measures_v31.pdf

2d.3 Data/sample *(description of data/sample and size)*: AHRQ 2007 State Inpatient Databases (SID) with 3,500 hospitals and 6 million pediatric discharges

2d.4 Analytic Method *(type analysis & rationale)*:
Expert panel review

2d.5 Testing Results *(e.g., frequency, variability, sensitivity analyses)*:
Measures of Pediatric Health Care Quality Based on Hospital Administrative Data, The Pediatric Quality Indicators. Ver 3.1 March 2007
http://qualityindicators.ahrq.gov/downloads/pdi/pdi_measures_v31.pdf

2d
C ☐
P ☐
M ☐
N ☐
NA ☐

2e. Risk Adjustment for Outcomes/ Resource Use Measures

2e.1 Data/sample *(description of data/sample and size)*: [AHRQ 2007 State Inpatient Databases (SID) with 3,500 hospitals and 6 million pediatric discharges]

2e
C ☐
P ☐
M ☐

2e.2 Analytic Method *(type of risk adjustment, analysis, & rationale)*:
Risk-adjustment models use a standard set of categories based on readily available classification systems for demographics, severity of illness and comorbidities. Within each category, covariates are initially selected based on a minimum of 30 cases in the outcome of interest. Then a stepwise regression process on a development sample is used to select a parsimonious set of covariates where p<.05. Model is then tested on a validation sample

2e.3 Testing Results *(risk model performance metrics)*:
c-statistic 0.5

2e.4 If outcome or resource use measure is not risk adjusted, provide rationale: Based on the process described above, there where no covariates that discriminated for the outcome of interest.

N☐ NA ☐

2f. Identification of Meaningful Differences in Performance

2f.1 Data/sample from Testing or Current Use *(description of data/sample and size)*: [AHRQ 2007 State Inpatient Databases (SID) with 3,500 hospitals and 6 million pediatric discharges]

2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance *(type of analysis & rationale)*:
Posterior probability distribution parameterized using the Gamma distribution

2f.3 Provide 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)*:

5th	25th	Median	75th	95th
0.000007	0.000115	0.000438	0.001161	0.003144

2f C☐ P☐ M☐ N☐

2g. Comparability of Multiple Data Sources/Methods

2g.1 Data/sample *(description of data/sample and size)*: Not applicable

2g.2 Analytic Method *(type of analysis & rationale)*:
Not applicable

2g.3 Testing Results *(e.g., correlation statistics, comparison of rankings)*:
Not applicable

2g C☐ P☐ M☐ N☐ NA ☐

2h. Disparities in Care

2h.1 If measure is stratified, provide stratified results *(scores by stratified categories/cohorts)*: Median income of patient´s ZIP code:
1) Estimate 2) Standard error 3) P-value: Relative to marked group-c 4) P-value:
2007 relative to 2006
First quartile (lowest income) 1.126 0.159 0.841 0.000
Second quartile 1.136 0.180 0.820 0.000
Third quartile 0.938 0.193 0.642 0.327
Fourth quartile (highest income)c 1.072 0.216 DNC

2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:
Users may stratify based on gender and race/ethnicity

2h C☐ P☐ M☐ N☐ NA ☐

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*

2

Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met?
Rationale:

2 C ☐ P ☐

M ☐
N ☐

3. USABILITY

Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)

Eval Rating

3a. Meaningful, Understandable, and Useful Information

3a.1 Current Use: In use

3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large) (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:**
Illinois (state hospital association)
Illinois Hospitals Caring for You
www.illinoishospitals.org

Kentucky (Norton Healthcare, a hospital system)
Norton Healthcare Quality Report
http://www.nortonhealthcare.com/body.cfm?id=157

Texas (state)
Reports on Hospital Performance
http://www.dshs.state.tx.us/thcic/

The measure is also reported on HCUPnet:
http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=EB57801381F71C41&Form=MAINSEL&JS=Y&Action=%3E%3ENext%3E%3E&_MAINSEL=AHRQ%20Quality%20Indicators

This measure will be appear in the MONAHRQ system that is provided for public reporting and quality improvement throughout the United States: http://monahrq.ahrq.gov/

3a.3 If used in other programs/initiatives (*If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):**
[University Healthcare Consortium - An alliance of 103 academic medical centers and 219 of their affiliated hospitals. Reporting the AHRQ QIs to their member hospitals. (see www.uhc.edu. Note: measure results reported to hospitals; not reported on site).

Dallas Fort Worth Hospital Council – Reporting on measure results to over 70 hospitals in Texas (see www.dfwhc.ord. Note: measure results reported to hospitals; not reported on site).

Norton Healthcare - a multi-hospital system in Kentucky (see
http://www.nortonhealthcare.com/about/Our_Performance/index.aspx)
Ministry Health Care - a multi-hospital system in Wisconsin (see
http://ministryhealth.org/display/router.aspx. Note: measure results reported to hospitals; not reported on site).

Minnesota Hospital Association
http://www.mnhospitals.org/ Note: measure used in quality improvement. Not reported publicly by the association)

Added the following to be consistent with other forms: This measure will be added to the MONAHRQ system that is provided for public reporting and quality improvement throughout the United States:
http://monahrq.ahrq.gov/

3a
C ☐
P ☐
M ☐
N ☐

Testing of Interpretability (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) 3a.4 **Data/sample** *(description of data/sample and size)*: [AHRQ 2007 State Inpatient Databases (SID) with 3,500 hospitals and 6 million pediatric discharges] 3a.5 **Methods** *(e.g., focus group, survey, QI project)*: A research team from the School of Public Affairs, Baruch College, under contracts with the Department of Public Health, Weill Medical College and Battelle, Inc., has developed a pair of Hospital Quality Model Reports at the request of the Agency for Healthcare Research & Quality (AHRQ). These reports are designed specifically to report comparative information on hospital performance based on the AHRQ Quality Indicators (QIs). The work was done in close collaboration with AHRQ staff and the AHRQ Quality Indicators team. The Model Reports (discussed immediately above) are based on: • Extensive search and analysis of the literature on hospital quality measurement and reporting, as well as public reporting on health care quality more broadly; • Interviews with quality measurement and reporting experts, purchasers, staff of purchasing coalitions, and executives of integrated health care delivery systems who are responsible for quality in their facilities; • Two focus groups with chief medical officers of hospitals and/or systems and two focus groups with quality managers from a broad mix of hospitals; • Four focus groups with members of the public who had recently experienced a hospital admission; and • Four rounds of cognitive interviews (a total of 62 interviews) to test draft versions of the two Model Reports with members of the public with recent hospital experience, basic computer literacy but widely varying levels of education 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)*: Given the above review of the literature and original research that was conducted, a Model report was the result that could help sponsors use the best evidence on public reports so they are most likely to have the desired effects on quality.	
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:**	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?**	**3b** C☐ P☐ M☐ N☐ NA ☐
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:** No competing measures found.	**3c** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐ N☐
4. FEASIBILITY	

Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** C☐ P☐ M☐ N☐
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) Yes **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.**	**4b** C☐ P☐ M☐ N☐
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** C☐ P☐ M☐ N☐ NA☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** Coding professionals follow detail guidelines, are subject to training and credentialing requirements, peer review and audit.	**4d** C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** None **4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** All data necessary to calculate this measure are routinely collected for hospital administrative purposes. The software for calculating the measure is available for free at: http://www.qualityindicators.ahrq.gov/software.htm **4e.3 Evidence for costs:** All data necessary to calculate this measure are routinely collected for hospital administrative purposes. The software for calculating the measure is available for free at: http://www.qualityindicators.ahrq.gov/software.htm **4e.4 Business case documentation:** All data necessary to calculate this measure are routinely collected for hospital administrative purposes. The software for calculating the measure is available for free at: http://www.qualityindicators.ahrq.gov/software.htm	**4e** C☐ P☐ M☐ N☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** C☐ P☐ M☐

	N☐
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	Time-limited ☐
Steering Committee: Do you recommend for endorsement? **Comments:**	Y☐ N☐ A☐

CONTACT INFORMATION

Co.1 Measure Steward (Intellectual Property Owner)
Co.1 Organization
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Co.2 Point of Contact
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Co.3 Organization
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Co.4 Point of Contact
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Co.5 Submitter If different from Measure Steward POC
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Co.6 Additional organizations that sponsored/participated in measure development
None

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
UC Davis,
Stanford University,
Battelle Memorial Institute

Ad.2 If adapted, provide name of original measure: None
Ad.3-5 If adapted, provide original specifications URL or attachment

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released: 2006
Ad.7 Month and Year of most recent revision: 10, 2010
Ad.8 What is your frequency for review/update of this measure? Annual
Ad.9 When is the next scheduled review/update for this measure? 05, 2011

Ad.10 Copyright statement/disclaimers: The AHRQ QI software is publicly available; no copyright disclaimers.

Ad.11 -13 Additional Information web page URL or attachment: Attachment PDI Appendices.pdf

Date of Submission (*MM/DD/YY*)**:** 04/05/2011

Appendices

Contents

Appendix A – Operating Room Procedure Codes

ICD-9-CM Operating Room procedure codes:

The ICD-9-CM codes added after January 17, 2005 are identified by the date of introduction, e.g., OCT 04, after the code label.

0049	SUPERSAT 02 THERAPY 0CT08-
0050	IMPL CRT PACEMAKER SYS
0051	IMPL CRT DEFIBRILLAT SYS
0052	IMP/REP LEAD LF VEN SYS
0053	IMP/REP CRT PACEMAKR GEN
0054	IMP/REP CRT DEFIB GENAT
0056	INS/REP IMPL SENSOR LEAD OCT06-
0057	IMP/REP SUBCUE CARD DEV OCT06-
0058	INS INTRA-ANSM PRES MNTR OCT08-
0059	INTRAVASC MSMNT COR ART OCT08-
0061	PERC ANGIO PRECEREB VES (OCT 04)
0062	PERC ANGIO INTRACRAN VES (OCT 04)
0066	PTCA OR CORONARY ATHER OCT05-
0067	INTRAVAS MSMNT THORC ART OCT08-
0068	INTRAVAS MSMT PERIPH ART OCT08-
0069	INTRAVS MSMT VES NEC/NOS OCT08-
0070	REV HIP REPL-ACETAB/FEM OCT05-
0071	REV HIP REPL-ACETAB COMP OCT05-
0072	REV HIP REPL-FEM COMP OCT05-
0073	REV HIP REPL-LINER/HEAD OCT05-
0080	REV KNEE REPLACEMT-TOTAL OCT05-
0081	REV KNEE REPL-TIBIA COMP OCT05-
0082	REV KNEE REPL-FEMUR COMP OCT05-
0083	REV KNEE REPLACE-PATELLA OCT05-
0084	REV KNEE REPL-TIBIA LIN OCT05-
0085	RESRF HIPTOTAL-ACET/FEM OCT06-
0086	RESRF HIPPART-FEM HEAD OCT06-
0087	RESRF HIPPART-ACETABLUM OCT06-
0094	INTRA-OP NEURO PHYS MONTR OCT08-
0110	INTRACRAN PRESSURE MONTR OCT08-
0112	OPEN CEREB MENINGES BX
0114	OPEN BRAIN BIOPSY
0115	SKULL BIOPSY
0116	INTRACRANIAL 02 MONITOR OCT08-
0117	BRAIN TEMP MONITORING OCT08-
0118	OTHER BRAIN DX PROCEDURE
0119	OTHER SKULL DX PROCEDURE
0121	CRANIAL SINUS I & D

0122	REMOV INTRACRAN STIMULAT
0123	REOPEN CRANIOTOMY SITE
0124	OTHER CRANIOTOMY
0125	OTHER CRANIECTOMY
0128	INTRACEREB CTH-BURR HOLE OCT06-
0131	INCISE CEREBRAL MENINGES
0132	LOBOTOMY & TRACTOTOMY
0139	OTHER BRAIN INCISION
0141	THALAMUS OPERATIONS
0142	GLOBUS PALLIDUS OPS
0151	EX CEREB MENINGEAL LES
0152	HEMISPHERECTOMY
0153	BRAIN LOBECTOMY
0159	OTHER BRAIN EXCISION
016	EXCISE SKULL LESION
0201	LINEAR CRANIECTOMY
0202	ELEVATE SKULL FX FRAGMNT
0203	SKULL FLAP FORMATION
0204	BONE GRAFT TO SKULL
0205	SKULL PLATE INSERTION
0206	CRANIAL OSTEOPLASTY NEC
0207	SKULL PLATE REMOVAL
0211	SIMPLE SUTURE OF DURA
0212	BRAIN MENINGE REPAIR NEC
0213	MENINGE VESSEL LIGATION
0214	CHOROID PLEXECTOMY
022	VENTRICULOSTOMY
0231	VENTRICL SHUNT-HEAD/NECK
0232	VENTRI SHUNT-CIRCULA SYS
0233	VENTRICL SHUNT-THORAX
0234	VENTRICL SHUNT-ABDOMEN
0235	VENTRI SHUNT-UNINARY SYS
0239	OTHER VENTRICULAR SHUNT
0242	REPLACE VENTRICLE SHUNT
0243	REMOVE VENTRICLE SHUNT
0291	LYSIS CORTICAL ADHESION
0292	BRAIN REPAIR
0293	IMPLANT BRAIN STIMULATOR
0294	INSERT/REPLAC SKULL TONG
0299	SKULL & BRAIN OP NEC
0301	REMOVAL FB SPINAL CANAL
0302	REOPEN LAMINECTOMY SITE
0309	SPINAL CANAL EXPLOR NEC
031	INTRASPIN NERVE ROOT DIV
0321	PERCUTANEOUS CHORDOTOMY
0329	OTHER CHORDOTOMY
0332	SPINAL CORD/MENINGES BX
0339	OTHER SPINAL DX PROC
034	EXCIS SPINAL CORD LESION
0351	SPINE MENINGOCELE REPAIR
0352	MYELOMENINGOCEL REPAIR
0353	VERTEBRAL FX REPAIR
0359	SPINAL STRUCT REPAIR NEC
036	SPINAL CORD ADHESIOLYSIS
0371	SUBARACH-PERITON SHUNT
0372	SUBARACH-URETERAL SHUNT
0379	OTH SPINAL THECAL SHUNT
0393	INSERT SPINAL STIMULATOR
0394	REMOVE SPINAL STIMULATOR
0397	REVISE SPINE THECA SHUNT
0398	REMOVE SPINE THECA SHUNT
0399	SPINE CANAL STRUC OP NEC
0401	EXCISION ACOUSTC NEUROMA
0402	TRIGEMINAL NERV DIVISION
0403	PERIPH NERVE DIV NEC
0404	PERIPH NERVE INCIS NEC
0405	GASSERIAN GANGLIONECTOMY
0406	PERIPH GANGLIONECT NEC
0407	PERIPH NERV EXCISION NEC
0412	OPEN PERIPH NERVE BIOPSY
0419	PERIPH NERVE DX PROC NEC
043	PERIPHERAL NERVE SUTURE
0441	DECOMPRESS TRIGEM ROOT
0442	CRAN NERV ROOT DECOM NEC
0443	CARPAL TUNNEL RELEASE
0444	TARSAL TUNNEL RELEASE
0449	PER NERVE ADHESIOLYS NEC
045	PERIPHERAL NERVE GRAFT
046	PERIPH NERVE TRANSPOSIT
0471	HYPOGLOSS-FACIAL ANASTOM
0472	ACCESSORY-FACIAL ANASTOM
0473	ACCESS-HYPOGLOSS ANASTOM
0474	PERIPH NERV ANASTOM NEC
0475	POSTOP REVIS PER NERV OP
0476	LATE REPAIR PER NERV INJ
0479	OTHER NEUROPLASTY
0491	NEURECTASIS
0492	IMPLANT PERIPH STIMULAT
0493	REMOVE PERIPH STIMULATOR
0499	PERIPHERAL NERVE OPS NEC
050	SYMPATH NERVE DIVISION
0511	SYMPATHETIC NERVE BIOPSY
0519	SYMPATH NRV DX PROC NEC
0521	SPHENOPALATIN GANGLIONEC
0522	CERVICAL SYMPATHECTOMY
0523	LUMBAR SYMPATHECTOMY
0524	PRESACRAL SYMPATHECTOMY
0525	PERIART SYMPATHECTOMY
0529	OTHER SYMPATHECTOMY
0581	SYMPATHETIC NERVE REPAIR
0589	SYMPATHETIC NERVE OP NEC
059	OTHER NERVOUS SYSTEM OPS
0602	REOPEN THYROID FIELD WND
0609	INCIS THYROID FIELD NEC
0612	OPEN THYROID GLAND BX
0613	PARATHYROID BIOPSY
0619	THYR/PARATHY DX PROC NEC
062	UNILAT THYROID LOBECTOMY
0631	EXCISION THYROID LESION
0639	PART THYROIDECTOMY NEC
064	COMPLETE THYROIDECTOMY
0650	SUBSTERN THYROIDECT NOS
0651	PART SUBSTERN THYROIDECT
0652	TOT SUBSTERN THYROIDECT
066	LINGUAL THYROID EXCISION
067	THYROGLOSS DUCT EXCISION
0681	TOTAL PARATHYROIDECTOMY
0689	OTHER PARATHYROIDECTOMY
0691	THYROID ISTHMUS DIVISION
0692	THYROID VESSEL LIGATION
0693	THYROID SUTURE
0694	THYROID REIMPLANTATION
0695	PARATHYROID REIMPLANT
0698	OTHER THYROID OPERATIONS

0699	OTHER PARATHYROID OPS
0700	ADRENAL EXPLORATION NOS
0701	UNILAT ADRENAL EXPLORAT
0702	BILAT ADRENAL EXPLORAT
0712	OPEN ADRENAL GLAND BX
0713	TRANSFRONT PITUITARY BX
0714	TRANSPHEN PITUITARY BX
0715	PITUITARY BIOPSY NOS
0716	THYMUS BIOPSY
0717	PINEAL BIOPSY
0719	ENDOCRINE DX PROC NEC
0721	ADRENAL LESION EXCISION
0722	UNILATERAL ADRENALECTOMY
0729	PART ADRENALECTOMY NEC
073	BILATERAL ADRENALECTOMY
0741	ADRENAL INCISION
0742	ADRENAL NERVE DIVISION
0743	ADRENAL VESSEL LIGATION
0744	ADRENAL REPAIR
0745	ADRENAL REIMPLANTATION
0749	ADRENAL OPERATION NEC
0751	PINEAL FIELD EXPLORATION
0752	PINEAL GLAND INCISION
0753	PARTIAL PINEALECTOMY
0754	TOTAL PINEALECTOMY
0759	PINEAL OPERATION NEC
0761	EXC PITUIT LES-TRANSFRON
0762	EXC PITUIT LES-TRANSPHEN
0763	PART EXCIS PITUITARY NOS
0764	TOT EXC PITUIT-TRANSFRON
0765	TOT EXC PITUIT-TRANSPHEN
0768	TOTAL EXC PITUITARY NEC
0769	TOTAL EXC PITUITARY NOS
0771	PITUITARY FOSSA EXPLORAT
0772	PITUITARY GLAND INCISION
0779	PITUITARY OPERATION NEC
0780	THYMECTOMY NOS
0781	PART EXCISION OF THYMUS
0782	TOTAL EXCISION OF THYMUS
0783	THORAC PART EXISN THYMUS OCT08-
0784	THORAC TOTAL EXC THYMUS OCT08-
0791	THYMUS FIELD EXPLORATION
0792	INCISION OF THYMUS
0793	REPAIR OF THYMUS
0794	THYMUS TRANSPLANTATION
0795	THORAC INCISION THYMUS OCT08-
0798	OTH THORAC OP THYMUS NOS OCT08-
0799	THYMUS OPERATION NEC
0811	EYELID BIOPSY
0820	REMOVE EYELID LESION NOS
0821	CHALAZION EXCISION
0822	EXCISE MINOR LES LID NEC
0823	EXC MAJ LES LID PRT-THIC
0824	EXC MAJ LES LID FUL-THIC
0825	DESTRUCTION LID LESION
0831	PTOSIS REP-FRONT MUS SUT
0832	PTOSIS REP-FRON MUS SLNG
0833	PTOSIS REP-LEVAT MUS ADV
0834	PTOSIS REP-LEVAT MUS NEC
0835	PTOS REP-TARSAL TECHNIQ
0836	BLEPHAROPTOS REPAIR NEC
0837	REDUC OVERCORRECT PTOSIS
0838	CORRECT LID RETRACTION
0841	THERMOCAUT/ENTROPION REP
0842	SUTURE ENTROPION REPAIR
0843	WEDG RESEC ENTROPION REP
0844	LID RECONS ENTROPION REP
0849	ENTROPION/ECTROP REP NEC
0851	CANTHOTOMY
0852	BLEPHARORRHAPHY
0859	ADJUST LID POSITION NEC
0861	LID RECONST W SKIN GRAFT
0862	LID RECONST W MUC GRAFT
0863	LID RECONST W HAIR GRAFT
0864	LID RECON-TARSOCONJ FLAP
0869	LID RECONSTR W GRAFT NEC
0870	LID RECONSTRUCTION NOS
0871	LID MARG RECON-PART THIC
0872	LID RECONS-PART THIC NEC
0873	LID MARG RECONS FUL THIC
0874	LID RECONST-FUL THIC NEC
0891	ELECTROSURG LID EPILAT
0892	CRYOSURG LID EPILATION
0893	EYELID EPILATION NEC
0899	EYELID OPERATION NEC
090	LACRIMAL GLAND INCISION
0911	LACRIMAL GLAND BIOPSY
0912	LACRIMAL SAC BIOPSY
0919	LACRIMAL SYS DX PROC NEC
0920	EXC LACRIMAL GLAND NOS
0921	EXCIS LES LACRIMAL GLAND
0922	PART DACRYOADENECT NEC
0923	TOTAL DACRYOADENECTOMY
093	OTHER LACRIMAL GLAND OPS
0941	LACRIMAL PUNCTUM PROBE
0942	LAC CANALICULI PROBE
0943	NASOLACRIMAL DUCT PROBE
0944	NASOLAC DUCT INTUBAT
0949	LAC PASSAGE MANIP NEC
0951	LAC PUNCTUM INCISION
0952	LAC CANALICULI INCISION
0953	LACRIMAL SAC INCISION
0959	LACRIM PASSAGE INCIS NEC
096	LACRIM SAC/PASSAGE EXCIS
0971	CORRECT EVERTED PUNCTUM
0972	PUNCTUM REPAIR NEC
0973	CANALICULUS REPAIR
0981	DACRYOCYSTORHINOSTOMY
0982	CONJUNCTIVOCYSTORHINOST
0983	CONJUNCTIVORHINOS W TUBE
0991	LAC PUNCTUM OBLITERATION
0999	LACRIMAL SYSTEM OP NEC
100	INCISE/REMOV CONJUNCT FB
101	CONJUNCTIVA INCISION NEC
1021	CONJUNCTIVAL BIOPSY
1029	CONJUNCTIVA DX PROC NEC
1031	EXCISE CONJUNCTIV LESION
1032	DESTRUCT CONJUNC LES NEC
1033	OTH CONJUNC DESTRUC PROC
1041	SYMBLEPH REP W FREE GRFT
1042	GRAFT CONJUNC CUL-DE-SAC
1043	CONJUN CUL-DE-SAC RX NEC
1044	CONJUNC FREE GRAFT NEC
1049	CONJUNCTIVOPLASTY NEC

105	CONJUNC/LID ADHESIOLYSIS
106	REPAIR CONJUNCT LACERAT
1091	SUBCONJUNCTIVAL INJECT
1099	CONJUNCTIVAL OP NEC
110	MAGNET REMOVAL CORNEA FB
111	CORNEAL INCISION
1121	CORNEAL SCRAPE FOR SMEAR
1122	CORNEAL BIOPSY
1129	CORNEAL DX PROC NEC
1131	PTERYGIUM TRANSPOSITION
1132	PTERYG EXC W CORNEA GRFT
1139	PTERYGIUM EXCISION NEC
1141	MECH REMOV CORNEA EPITH
1142	THERMOCAUT CORNEA LESION
1143	CRYOTHERAP CORNEA LESION
1149	DESTRUCT CORNEA LES NEC
1151	SUTURE CORNEA LACERATION
1152	REP CORNEA POSTOP DEHISC
1153	RX CORNEA LAC W CONJ FLP
1159	CORNEAL REPAIR NEC
1160	CORNEAL TRANSPLANT NOS
1161	LAM KERATPLAST W AUTGRFT
1162	LAMELLAR KERATOPLAST NEC
1163	PERF KERATOPL W AUTOGRFT
1164	PERFORAT KERATOPLAST NEC
1169	CORNEAL TRANSPLANT NEC
1171	KERATOMILEUSIS
1172	KERATOPHAKIA
1173	KERATOPROSTHESIS
1174	THERMOKERATOPLASTY
1175	RADIAL KERATOTOMY
1176	EPIKERATOPHAKIA
1179	CORNEA RECONSTRUCT NEC
1191	CORNEAL TATTOOING
1192	REMOVE CORNEAL IMPLANT
1199	CORNEAL OPERATION NEC
1200	REMOV ANT SEGMNT FB NOS
1201	MAGNET REMOV ANT SEG FB
1202	NONMAG REMOV ANT SEG FB
1211	IRIDOTOMY W TRANSFIXION
1212	IRIDOTOMY NEC
1213	PROLAPSED IRIS EXCISION
1214	IRIDECTOMY NEC
1221	DX ASPIRAT-ANT CHAMBER
1222	IRIS BIOPSY
1229	ANT SEGMENT DX PROC NEC
1231	GONIOSYNECHIAE LYSIS
1232	ANT SYNECHIA LYSIS NEC
1233	POST SYNECHIAE LYSIS
1234	CORNEOVITREAL ADHESIOLYS
1235	COREOPLASTY
1239	IRIDOPLASTY NEC
1240	REMOV ANT SEGMNT LES NOS
1241	NONEXC DESTRUC IRIS LES
1242	EXCISION OF IRIS LESION
1243	NONEXC DESTR CIL BOD LES
1244	EXCISE CILIARY BODY LES
1251	GONIOPUNCTURE
1252	GONIOTOMY
1253	GONIOTOMY W GONIOPUNCTUR
1254	TRABECULOTOMY AB EXTERNO
1255	CYCLODIALYSIS
1259	FACILIT INTRAOC CIRC NEC
1261	TREPHIN SCLERA W IRIDECT
1262	THERMCAUT SCLER W IRIDEC
1263	IRIDENCLEISIS/IRIDOTASIS
1264	TRABECULECTOM AB EXTERNO
1265	SCLER FISTULIZ W IRIDECT
1266	POSTOP REVIS SCL FISTUL
1269	SCLER FISTULIZING OP NEC
1271	CYCLODIATHERMY
1272	CYCLOCRYOTHERAPY
1273	CYCLOPHOTOCOAGULATION
1274	CIL BODY DIMINUTION NOS
1279	GLAUCOMA PROCEDURE NEC
1281	SUTURE SCLERAL LACER
1282	SCLERAL FISTULA REPAIR
1283	REVIS ANT SEG OP WND NEC
1284	DESTRUCT SCLERAL LESION
1285	REPAIR STAPHYLOM W GRAFT
1286	REP SCLER STAPHYLOMA NEC
1287	GRAFT REINFORCE SCLERA
1288	SCLERA REINFORCEMENT NEC
1289	SCLERAL OPERATION NEC
1291	THERAPEUT EVAC ANT CHAMB
1292	ANTERIOR CHAMBER INJECT
1293	REMOV EPITHEL DOWNGROWTH
1297	IRIS OPERATION NEC
1298	CILIARY BODY OP NEC
1299	ANTERIOR CHAMBER OP NEC
1300	REMOVE FB LENS NOS
1301	MAGNET REMOVE FB LENS
1302	NONMAGNET REMOVE FB LENS
1311	TEMP-INF INTRCAP LENS EX
1319	INTRACAPSUL LENS EXT NEC
132	LINEAR EXTRACAP LENS EXT
133	SIMPL ASPIR LENS EXTRACT
1341	CATARAC PHACOEMULS/ASPIR
1342	POST CATARAC FRAG/ASPIR
1343	CATARACT FRAG/ASPIR NEC
1351	TEMP-INF XTRACAP LENS EX
1359	EXTRACAP LENS EXTRAC NEC
1361	EXTRACAP LENS EXTRAC NEC
1362	EXTRACAP LENS EXTRAC NEC
1363	EXTRACAP LENS EXTRAC NEC
1364	AFTER-CATAR DISCISSION
1365	AFTER-CATARACT EXCISION
1366	AFTER CATAR FRAGMNTATION
1369	CATARACT EXTRACTION NEC
1370	INSERT PSEUDOPHAKOS NOS
1371	INSERT LENS AT CATAR EXT
1372	SECONDARY INSERT LENS
138	IMPLANTED LENS REMOVAL
139	OTHER OPERATIONS ON LENS
1390	OPERATION ON LENS NEC OCT06-
1391	IMPL INTRAOC TELESC PROS OCT06-
1400	REMOV POST SEGMNT FB NOS
1401	MAGNET REMOV POST SEG FB
1402	NONMAG REMOV POST SEG FB
1411	DIAGNOST VITREOUS ASPIR
1419	DX PROC POST SEG NEC
1421	CHORIORET LES DIATHERMY
1422	CHORIORETIN LES CRYOTHER
1426	CHORIORET LES RADIOTHER

1427	CHORIORET LES RAD IMPLAN
1429	CHORIORET LES DESTR NEC
1431	RETINAL TEAR DIATHERMY
1432	RETINAL TEAR CRYOTHERAPY
1439	RETINAL TEAR REPAIR NEC
1441	SCLERAL BUCKLE W IMPLANT
1449	SCLERAL BUCKLING NEC
1451	DETACH RETINA-DIATHERMY
1452	DETACH RETINA-CRYOTHERAP
1453	DETACH RETINA XENON COAG
1454	DETACH RETINA LASER COAG
1455	DETACH RET PHOTOCOAG NOS
1459	REPAIR RETINA DETACH NEC
146	REMOV PROS MAT POST SEG
1471	ANTERIOR REMOV VITREOUS
1472	VITREOUS REMOVAL NEC
1473	ANTERIOR MECHAN VITRECT
1474	MECH VITRECTOMY NEC
1475	VITREOUS SUBSTITUT INJEC
1479	VITREOUS OPERATION NEC
149	OTHER POST SEGMENT OPS
1501	EXTRAOC MUSC-TEND BIOPSY
1509	EXTRAOC MUSC DX PROC NEC
1511	ONE EXTRAOC MUS RECESS
1512	1 EXTRAOC MUSCL ADVANCE
1513	1 EXTRAOC MUSCL RESECT
1519	XTRAOC MUS OP/DETACH NEC
1521	LENGTHEN 1 EXTRAOC MUSC
1522	SHORTEN 1 EXTRAOC MUSC
1529	OP ON 1 EXTRAOC MUSC NEC
153	TEMP DETACH >1 XTROC MUS
154	OTH OP ON >L EXTRAOC MUS
155	EXTRAOCUL MUS TRANSPOSIT
156	REVIS EXTRAOC MUSC SURG
157	EXTRAOC MUSC INJ REPAIR
159	OTH EXTRAOC MUS-TEND OP
1601	ORBITOTOMY W BONE FLAP
1602	ORBITOTOMY W IMPLANT
1609	ORBITOTOMY NEC
161	REMOVE PENETRAT FB EYE
1622	DIAGNOSTIC ASP OF ORBIT
1623	EYEBALL & ORBIT BIOPSY
1629	EYEBAL/ORBIT DX PROC NEC
1631	EYE EVISC W SYNCH IMPLAN
1639	EYEBALL EVISCERATION NEC
1641	EYE ENUC/IMPLAN/MUSC ATT
1642	EYE ENUC W IMPLANT NEC
1649	EYEBALL ENUCLEATION NEC
1651	RADICAL ORBITOMAXILLECT
1652	ORBIT EXENT W BONE REMOV
1659	ORBITAL EXENTERATION NEC
1661	2NDRY OCULAR IMP INSERT
1662	REVIS/REINSERT OCUL IMP
1663	REVIS ENUC SOCKET W GRFT
1664	ENUC SOCKET REVIS NEC
1665	2NDRY EXENT CAVITY GRAFT
1666	REVIS EXENTER CAVITY NEC
1669	2ND OP POST EYE REM NEC
1671	REMOVE OCULAR IMPLANT
1672	REMOVE ORBITAL IMPLANT
1681	REPAIR OF ORBITAL WOUND
1682	REPAIR EYEBALL RUPTURE
1689	EYE/ORBIT INJ REPAIR NEC
1692	EXCISION ORBITAL LESION
1693	EXCISION EYE LESION NOS
1698	OPERATION ON ORBIT NEC
1699	OPERATION ON EYEBALL NEC
1711	LAP DIR ING HERN-GRAFT OCT08-
1712	LAP INDIR ING HERN-GRAFT OCT08-
1713	LAP ING HERN-GRAFT NOS OCT08-
1721	LAP BIL DIR ING HRN-GRFT OCT08-
1722	LAP BI INDIR ING HRN-GRF OCT08-
1723	LAP BI DR/IND ING HRN-GR OCT08-
1724	LAP BIL ING HERN-GRF NOS OCT08-
1731	LAP MUL SEG RES LG INTES OCT08-
1732	LAPAROSCOPIC CECECTOMY OCT08-
1733	LAP RIGHT HEMICOLECTOMY OCT08-
1734	LAP RES TRANSVERSE COLON OCT08-
1735	LAP LEFT HEMICOLECTOMY OCT08-
1736	LAP SIGMOIDECTOMY OCT08-
1739	LAP PT EX LRG INTEST NEC OCT08-
1751	IMPLANT CCM, TOTAL SYSTEM OCT-09
1752	IMPLANT CCM PULSE GENRTR OCT-09
1761	LITT LESN BRAIN, GUIDANCE OCT-09
1762	LITT LES HD/NCK, GUIDANCE OCT-09
1763	LITT LESN LIVER, GUIDANCE OCT-09
1769	LITT LESN, GUIDE OTH/NOS OCT-09
1770	INTRVNOS INFSIN CLOFARABINE OCT-09
1821	PREAURICULAR SINUS EXCIS
1831	RAD EXCIS EXT EAR LES
1839	EXCIS EXTERNAL EAR NEC
185	CORRECTION PROMINENT EAR
186	EXT AUDIT CANAL RECONSTR
1871	CONSTRUCTION EAR AURICLE
1872	REATTACH AMPUTATED EAR
1879	PLASTIC REP EXT EAR NEC
189	OTHER EXT EAR OPERATIONS
190	STAPES MOBILIZATION
1911	STAPEDECT W REPLAC INCUS
1919	STAPEDECTOMY NEC
1921	REV STAPDEC W INCUS REPL
1929	STAPEDECTOMY REVIS NEC
193	OSSICULAR CHAIN OP NEC
194	MYRINGOPLASTY
1952	TYPE 2 TYMPANOPLASTY
1953	TYPE 3 TYMPANOPLASTY
1954	TYPE 4 TYMPANOPLASTY
1955	TYPE 5 TYMPANOPLASTY
196	TYMPANOPLASTY REVISION
199	MIDDLE EAR REPAIR NEC
2001	MYRINGOTOMY W INTUBATION
2021	MASTOID INCISION
2022	PETRUS PYRAM AIR CEL INC
2023	MIDDLE EAR INCISION
2032	MID & INNER EAR BIOPSY
2039	MID/IN EAR DX PROC NEC
2041	SIMPLE MASTOIDECTOMY
2042	RADICAL MASTOIDECTOMY
2049	MASTOIDECTOMY NEC
2051	EXCISE MIDDLE EAR LESION
2059	MIDDLE EAR EXCISION NEC
2061	INNER EAR FENESTRATION
2062	REVIS INNER EAR FENESTRA
2071	ENDOLYMPHATIC SHUNT

2072	INNER EAR INJECTION
2079	INC/EXC/DESTR IN EAR NEC
2091	TYMPANOSYMPATHECTOMY
2092	MASTOIDECTOMY REVISION
2093	REPAIR OVAL/ROUND WINDOW
2095	ELECMAG HEAR DEV IMPLANT
2096	IMPLT COCHLEAR PROST NOS
2097	IMP/REP SCHAN COCH PROS
2098	IMP/REP MCHAN COCHL PROS
2099	MID-INNER EAR OPS NEC
2104	ETHMOID ART LIGAT-EPIST
2105	MAX ART LIG FOR EPISTAX
2106	EXT CAROT ART LIG-EPIST
2107	NASAL SEPT GRFT-EPISTAX
2109	EPISTAXIS CONTROL NEC
214	RESECTION OF NOSE
215	SUBMUC NASAL SEPT RESECT
2161	DIATHER/CRYO TURBINECTOM
2162	TURBINATE FRACTURE
2169	TURBINECTOMY NEC
2172	OPEN REDUCTION NASAL FX
2182	NASAL FISTULA CLOSURE
2183	TOT NASAL RECONSTRUCTION
2184	REVISION RHINOPLASTY
2185	AUGMENTATION RHINOPLASTY
2186	LIMITED RHINOPLASTY
2187	RHINOPLASTY NEC
2188	SEPTOPLASTY NEC
2189	NASAL REPAIR NEC
2199	NASAL OPERATION NEC
2212	OPEN BIOPSY NASAL SINUS
2231	RADICAL MAXILLARY ANTROT
2239	EXT MAXILLARY ANTROT NEC
2241	FRONTAL SINUSOTOMY
2242	FRONTAL SINUSECTOMY
2250	SINUSOTOMY NOS
2251	ETHMOIDOTOMY
2252	SPHENOIDOTOMY
2253	MULTIPLE SINUS INCISION
2260	SINUSECTOMY NOS
2261	C-LUC EXC MAX SINUS LES
2262	EXC MAX SINUS LESION NEC
2263	ETHMOIDECTOMY
2264	SPHENOIDECTOMY
2271	NASAL SINUS FISTULA CLOS
2279	NASAL SINUS REPAIR NEC
229	OTHER NASAL SINUS OPS
242	GINGIVOPLASTY
244	EXC OF DENTAL LES OF JAW
245	ALVEOLOPLASTY
2502	OPEN BIOPSY OF TONGUE
251	DESTRUCTION TONGUE LES
252	PARTIAL GLOSSECTOMY
253	COMPLETE GLOSSECTOMY
254	RADICAL GLOSSECTOMY
2559	REPAIR OF TONGUE NEC
2594	OTHER GLOSSOTOMY
2599	TONGUE OPERATION NEC
2612	OPEN BX SALIV GLAND/DUCT
2621	SALIVARY CYST MARSUPIAL
2629	SALIV LESION EXCIS NEC
2630	SIALOADENECTOMY NOS
2631	PARTIAL SIALOADENECTOMY
2632	COMPLETE SIALOADENECTOMY
2641	SUTURE OF SALIV GLND LAC
2642	SALIVARY FISTULA CLOSURE
2649	SALIVARY REPAIR NEC
2699	SALIVARY OPERATION NEC
270	DRAIN FACE & MOUTH FLOOR
271	INCISION OF PALATE
2721	BONY PALATE BIOPSY
2722	UVULA AND SOFT PALATE BX
2731	LOC EXC BONY PALATE LES
2732	WIDE EXC BONY PALATE LES
2742	WIDE EXCISION OF LIP LES
2743	EXCISION OF LIP LES NEC
2749	EXCISION OF MOUTH NEC
2753	CLOSURE OF MOUTH FISTULA
2754	REPAIR OF CLEFT LIP
2755	FULL-THICK GRFT TO MOUTH
2756	SKIN GRAFT TO MOUTH NEC
2757	PEDICLE ATTACH TO MOUTH
2759	MOUTH REPAIR NEC
2761	SUTURE OF PALATE LACERAT
2762	CLEFT PALATE CORRECTION
2763	REVIS CLEFT PALAT REPAIR
2769	OTH PLASTIC REPAIR PALAT
2771	INCISION OF UVULA
2772	EXCISION OF UVULA
2773	REPAIR OF UVULA
2779	OTHER UVULA OPERATIONS
2792	MOUTH INCISION NOS
2799	ORAL CAVITY OPS NEC
280	PERITONSILLAR I & D
2811	TONSIL&ADENOID BIOPSY
2819	TONSIL&ADENOID DX OP NEC
282	TONSILLECTOMY
283	TONSILLECTOMY/ADENOIDEC
284	EXCISION OF TONSIL TAG
285	EXCISION LINGUAL TONSIL
286	ADENOIDECTOMY
287	HEMORR CONTRL POST T & A
2891	INCIS TO REMOV TONSIL FB
2892	EXCIS TONSIL/ADENOID LES
2899	TONSIL/ADENOID OPS NEC
290	PHARYNGOTOMY
292	EXC BRANCHIAL CLEFT CYST
293	EXC BRANCHIAL CLEFT CYST
2931	CRICOPHARYNGEAL MYOTOMY
2932	PHARYNGEAL DIVERTICULEC
2933	PHARYNGECTOMY
2939	EXCIS/DESTR LES PHAR NEC
294	PLASTIC OP ON PHARYNX
2951	SUTURE OF PHARYNGEAL LAC
2952	CLOS BRANCH CLEFT FISTUL
2953	CLOS PHARYNX FISTULA NEC
2954	LYSIS PHARYNGEAL ADHES
2959	PHARYNGEAL REPAIR NEC
2992	DIVIS GLOSSOPHARYNG NERV
2999	PHARYNGEAL OPERATION NEC
3001	LARYNX CYST MARSUPIALIZ
3009	DESTRUCT LARYNX LES NEC
301	HEMILARYNGECTOMY
3021	EPIGLOTTIDECTOMY

3022	VOCAL CORDECTOMY
3029	OTHER PART LARYNGECTOMY
303	COMPLETE LARYNGECTOMY
304	RADICAL LARYNGECTOMY
3121	MEDIASTINAL TRACHEOSTOMY
3129	OTHER PERM TRACHEOSTOMY
313	INCIS LARYNX TRACHEA NEC
3145	OPN BX LARYNX OR TRACHEA
315	LOCAL DESTRUC TRACH LES
3161	SUTURE OF LARYNGEAL LAC
3162	LARYNGEAL FISTULA CLOS
3163	LARYNGOSTOMY REVISION
3164	LARYNGEAL FX REPAIR
3169	OTHER LARYNGEAL REPAIR
3171	SUTURE OF TRACHEAL LACER
3172	CLOSURE OF TRACHEOSTOMY
3173	TRACHEA FISTULA CLOS NEC
3174	REVISION OF TRACHEOSTOMY
3175	TRACHEAL RECONSTRUCTION
3179	OTHER TRACHEAL REPAIR
3191	LARYNGEAL NERV DIVISION
3192	LYSIS TRACH/LARYNX ADHES
3198	OTH LARYNGEAL OPERATION
3199	OTHER TRACHEAL OPERATION
320	OTHER TRACHEAL OPERATION
3209	OTHER DESTRUC BRONC LES
321	OTHER BRONCHIAL EXCISION
3220	THORAC EXC LUNG LESION OCT08-
3221	EMPHYSEMA BLEB PLICATION
3222	LUNG VOL REDUCTION SURG
3223	OPEN ABLTN LUNG LES/TISS OCT06-
3224	PERC ABLTN LUNG LES/TISS OCT06-
3225	THOR ABLTN LUNG LES/TISS OCT06-
3226	ABLTN LUNG TISS NEC/NOS OCT06-
3229	DESTROY LOC LUNG LES NEC
323	SEGMENTAL LUNG RESECTION
3230	THORAC SEG LUNG RESECT OCT08-
3239	OTH SEG LUNG RESECT NOS OCT08-
324	LOBECTOMY OF LUNG
3241	THORAC LOBECTOMY LUNG OCT08-
3249	LOBECTOMY OF LUNG NEC OCT08-
325	COMPLETE PNEUMONECTOMY
3250	THORACOSPC PNEUMONECTOMY OCT08-
3259	OTHER PNEUMONECTOMY NOS OCT08-
326	RAD DISSEC THORAC STRUCT
329	OTHER EXCISION OF LUNG
330	INCISION OF BRONCHUS
331	INCISION OF LUNG
3320	THORACOSCOPC LUNG BIOPSY OCT08-
3325	OPEN BRONCHIAL BIOPSY
3327	CLOS ENDOSCOPIC LUNG BX
3328	OPEN LUNG BIOPSY
3329	BRONCH/LUNG DX PROC NEC
3334	THORACOPLASTY
3339	SURG COLLAPS OF LUNG NEC
3341	BRONCHIAL LACERAT SUTURE
3342	BRONCHIAL FISTULA CLOS
3343	LUNG LACERATION CLOSURE
3348	BRONCHIAL REPAIR NEC
3349	LUNG REPAIR NEC
335	LUNG REPAIR NEC
3350	LUNG TRANSPLANT NOS
3351	UNILAT LUNG TRANSPLANT
3352	BILAT LUNG TRANSPLANT
336	COMB HEART/LUNG TRANSPLA
3373	ENDO INS/RE BRNC VAL,MUL OCT09-
3392	BRONCHIAL LIGATION
3393	PUNCTURE OF LUNG
3398	BRONCHIAL OPERATION NEC
3399	LUNG OPERATION NEC
3402	EXPLORATORY THORACOTOMY
3403	REOPEN THORACOTOMY SITE
3406	THORAC DRAIN PLEURL CAV OCT08-
341	INCISION OF MEDIASTINUM
3420	THORACOSCOPIC PLEURAL BX OCT08-
3421	TRANSPLEURA THORACOSCOPY
3422	MEDIASTINOSCOPY
3426	OPEN MEDIASTINAL BIOPSY
3427	BIOPSY OF DIAPHRAGM
3428	DX PROCEDURE THORAX NEC
3429	DX PROC MEDIASTINUM NEC
343	DESTRUCT MEDIASTIN LES
344	DESTRUCT CHEST WALL LES
3451	DECORTICATION OF LUNG
3452	THORACOSCOPC DECORT LUNG OCT07-
3459	OTHER PLEURAL EXCISION
346	SCARIFICATION OF PLEURA
3473	CLOS THORACIC FISTUL NEC
3474	PECTUS DEFORMITY REPAIR
3479	OTHER CHEST WALL REPAIR
3481	EXCISE DIAPHRAGM LESION
3482	SUTURE DIAPHRAGM LACERAT
3483	CLOSE DIAPHRAGM FISTULA
3484	OTHER DIAPHRAGM REPAIR
3485	IMPLANT DIAPHRA PACEMAKE
3489	DIAPHRAGM OPERATION NEC
3493	REPAIR OF PLEURA
3499	THORACIC OPERATION NEC
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	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

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
3555	PROS REP VENTRC DEF-CLOS OCT06-
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
3596	PERC HEART VALVULOPLASTY
3598	OTHER HEART SEPTA OPS
3599	OTHER HEART VALVE OPS
3600	OTHER HEART VALVE OPS
3601	PTCA-1 VES/ATH W/O AGENT
3602	PTCA-1 VES/ATH W AGENT
3603	OPEN CORONRY ANGIOPLASTY
3605	PTCA-MULTIPLE VESSEL/ATH
3609	REM OF COR ART OBSTR NEC
3610	AORTOCORONARY BYPASS NOS
3611	AORTOCOR BYPAS-1 COR ART
3612	AORTOCOR BYPAS-2 COR ART
3613	AORTOCOR BYPAS-3 COR ART
3614	AORTCOR BYPAS-4+ COR ART
3615	1 INT MAM-COR ART BYPASS
3616	2 INT MAM-COR ART BYPASS
3617	ABD-CORON ARTERY BYPASS
3619	HRT REVAS BYPS ANAS NEC
362	ARTERIAL IMPLANT REVASC
363	ARTERIAL IMPLANT REVASC
3631	OPEN CHEST TRANS REVASC
3632	OTH TRANSMYO REVASCULAR
3633	ENDO TRANSMYO REVASCULAR OCT06-
3634	PERC TRANSMYO REVASCULAR OCT06-
3639	OTH HEART REVASCULAR
3691	CORON VESS ANEURYSM REP
3699	HEART VESSEL OP NEC
3710	INCISION OF HEART NOS
3711	CARDIOTOMY
3712	PERICARDIOTOMY
3724	PERICARDIAL BIOPSY
3731	PERICARDIECTOMY
3732	HEART ANEURYSM EXCISION
3733	EXC/DEST HRT LESION OPEN
3734	EXC/DEST HRT LES OTHER
3735	PARTIAL VENTRICULECTOMY
374	HEART & PERICARD REPAIR
3741	IMPL CARDIAC SUPPORT DEV OCT05-
3749	HEART/PERICARD REPR NEC OCT05-
375	HEART & PERICARD REPAIR
3751	HEART TRANSPLANTATION OCT03-
3752	IMPLANT TOT REP HRT SYS
3753	REPL/REP THORAC UNIT HRT
3754	REPL/REP OTH TOT HRT SYS
3755	REM INT BIVENT HRT SYS OCT08-
3760	IMP BIVN EXT HRT AST SYS OCT08-
3761	PULSATION BALLOON IMPLAN
3762	IMPLANT HRT ASST SYS NEC
3763	REPLACE HRT ASSIST SYST
3764	REMOVE HEART ASSIST SYS
3765	IMP EXT PUL HRT ASST SYS
3766	IMP IMP PUL HRT ASST SYS
3767	IMP CARDIOMYOSTIMUL SYS
3768	PERCUTAN HRT ASSIST SYST
3774	INT OR REPL LEAD EPICAR
3775	REVISION OF LEAD
3776	REPL TV ATRI-VENT LEAD
3777	REMOVAL OF LEAD W/O REPL
3779	REVIS OR RELOCATE POCKET
3780	INT OR REPL PERM PACEMKR
3785	REPL PACEM W 1-CHAM, NON
3786	REPL PACEM 1-CHAM, RATE
3787	REPL PACEM W DUAL-CHAM
3789	REVISE OR REMOVE PACEMAK
3791	OPN CHEST CARDIAC MASSAG
3794	IMPLT/REPL CARDDEFIB TOT
3795	IMPLT CARDIODEFIB LEADS
3796	IMPLT CARDIODEFIB GENATR
3797	REPL CARDIODEFIB LEADS
3798	REPL CARDIODEFIB GENRATR
3799	OTHER HEART/PERICARD OPS
3800	INCISION OF VESSEL NOS
3801	INTRACRAN VESSEL INCIS
3802	HEAD/NECK VES INCIS NEC
3803	UPPER LIMB VESSEL INCIS
3804	INCISION OF AORTA
3805	THORACIC VESSEL INC NEC
3806	ABDOMEN ARTERY INCISION
3807	ABDOMINAL VEIN INCISION
3808	LOWER LIMB ARTERY INCIS
3809	LOWER LIMB VEIN INCISION
3810	ENDARTERECTOMY NOS
3811	INTRACRAN ENDARTERECTOMY
3812	HEAD & NECK ENDARTER NEC
3813	UPPER LIMB ENDARTERECTOM
3814	ENDARTERECTOMY OF AORTA
3815	THORACIC ENDARTERECTOMY
3816	ABDOMINAL ENDARTERECTOMY
3818	LOWER LIMB ENDARTERECT
3821	BLOOD VESSEL BIOPSY
3824	INTRAVAS IMG COR VES OCT09-
3825	INTRAVAS IMG NON-COR OCT09-
3829	BLOOD VESSEL DX PROC NEC
3830	VESSEL RESECT/ANAST NOS
3831	INTRACRAN VES RESEC-ANAS
3832	HEAD/NECK VES RESEC-ANAS
3833	ARM VESSEL RESECT/ANAST
3834	AORTA RESECTION & ANAST
3835	THOR VESSEL RESECT/ANAST
3836	ABD VESSEL RESECT/ANAST

3837	ABD VEIN RESECT & ANAST
3838	LEG ARTERY RESECT/ANAST
3839	LEG VEIN RESECT/ANASTOM
3840	VESSEL RESECT/REPLAC NOS
3841	INTRACRAN VES RESEC-REPL
3842	HEAD/NECK VES RESEC-REPL
3843	ARM VES RESECT W REPLACE
3844	RESECT ABDM AORTA W REPL
3845	RESECT THORAC VES W REPL
3846	ABD ARTERY RESEC W REPLA
3847	ABD VEIN RESECT W REPLAC
3848	LEG ARTERY RESEC W REPLA
3849	LEG VEIN RESECT W REPLAC
3850	VARICOSE V LIG-STRIP NOS
3851	INTCRAN VAR V LIG-STRIP
3852	HEAD/NECK VAR V LIG-STR
3853	ARM VARICOSE V LIG-STRIP
3855	THORAC VAR V LIG-STRIP
3857	ABD VARICOS V LIGA-STRIP
3859	LEG VARICOS V LIGA-STRIP
3860	EXCISION OF VESSEL NOS
3861	INTRACRAN VESSEL EXCIS
3862	HEAD/NECK VESSEL EXCIS
3863	ARM VESSEL EXCISION
3864	EXCISION OF AORTA
3865	THORACIC VESSEL EXCISION
3866	ABDOMINAL ARTERY EXCIS
3867	ABDOMINAL VEIN EXCISION
3868	LEG ARTERY EXCISION
3869	LEG VEIN EXCISION
3880	SURG VESSEL OCCLUS NEC
3881	OCCLUS INTRACRAN VES NEC
3882	OCCLUS HEAD/NECK VES NEC
3883	OCCLUDE ARM VESSEL NEC
3884	OCCLUDE AORTA NEC
3885	OCCLUDE THORACIC VES NEC
3886	OCCLUDE ABD ARTERY NEC
3887	OCCLUDE ABD VEIN NEC
3888	OCCLUDE LEG ARTERY NEC
3889	OCCLUDE LEG VEIN NEC
390	SYSTEMIC-PULM ART SHUNT
391	INTRA-ABD VENOUS SHUNT
3921	CAVAL-PULMON ART ANASTOM
3922	AORTA-SUBCLV-CAROT BYPAS
3923	INTRATHORACIC SHUNT NEC
3924	AORTA-RENAL BYPASS
3925	AORTA-ILIAC-FEMOR BYPASS
3926	INTRA-ABDOMIN SHUNT NEC
3927	DIALYSIS ARTERIOVENOSTOM
3928	EXTRACRAN-INTRACR BYPASS
3929	VASC SHUNT & BYPASS NEC
3930	SUTURE OF VESSEL NOS
3931	SUTURE OF ARTERY
3932	SUTURE OF VEIN
3941	POSTOP VASC OP HEM CONTR
3942	REVIS REN DIALYSIS SHUNT
3943	REMOV REN DIALYSIS SHUNT
3949	VASC PROC REVISION NEC
3950	ANGIO/ATH NON-CORO VES
3951	CLIPPING OF ANEURYSM
3952	ANEURYSM REPAIR NEC
3953	ARTERIOVEN FISTULA REP
3954	RE-ENTRY OPERATION
3955	REIMPLAN ABERR RENAL VES
3956	REPAIR VESS W TIS PATCH
3957	REP VESS W SYNTH PATCH
3958	REPAIR VESS W PATCH NOS
3959	REPAIR OF VESSEL NEC
397	PER CARDIOPULMON BYPASS
3971	ENDO IMPL GRFT ABD AORTA
3972	ENDOVASC REPAIR HEAD VES
3973	ENDO IMP GRFT THOR AORTA OCT05-
3974	ENDO REM OBS HD/NECK VES OCT06-
3975	ENDO EMB HD/NK, BARE COIL OCT-09
3976	ENDO EM HD/NK, BIOAC COIL OCT-09
3979	ENDO REPAIR OTHER VESSEL
398	CARTD BODY/SINUS/VASC OP OCT08-
3991	FREEING OF VESSEL
3992	VEIN INJECT-SCLEROS AGNT
3993	INSERT VES-TO-VES CANNUL
3994	REPLAC VES-TO-VES CANNUL
3998	HEMORRHAGE CONTROL NOS
3999	VESSEL OPERATION NEC
400	INCIS LYMPHATIC STRUCTUR
4011	LYMPHATIC STRUCT BIOPSY
4019	LYMPHATIC DIAG PROC NEC
4021	EXCIS DEEP CERVICAL NODE
4022	EXCISE INT MAMMARY NODE
4023	EXCISE AXILLARY NODE
4024	EXCISE INGUINAL NODE
4029	SIMP EXC LYMPH STRUC NEC
403	REGIONAL LYMPH NODE EXC
4040	RAD NECK DISSECTION NOS
4041	UNILAT RAD NECK DISSECT
4042	BILAT RAD NECK DISSECT
4050	RAD NODE DISSECTION NOS
4051	RAD DISSEC AXILLARY NODE
4052	RAD DISSEC PERIAORT NODE
4053	RAD DISSECT ILIAC NODES
4054	RADICAL GROIN DISSECTION
4059	RAD NODE DISSECTION NEC
4061	THORAC DUCT CANNULATION
4062	THORACIC DUCT FISTULIZAT
4063	CLOSE THORACIC DUCT FIST
4064	LIGATE THORACIC DUCT
4069	THORACIC DUCT OP NEC
409	LYMPH STRUCTURE OP NEC
412	SPLENOTOMY
4133	OPEN SPLEEN BIOPSY
4141	SPLENIC CYST MARSUPIAL
4142	EXC SPLENIC LESION/TISS
4143	PARTIAL SPLENECTOMY
415	TOTAL SPLENECTOMY
4193	EXC OF ACCESSORY SPLEEN
4194	SPLEEN TRANSPLANTATION
4195	REPAIR OF SPLEEN
4199	SPLEEN OPERATION NEC
4201	ESOPHAGEAL WEB INCISION
4209	ESOPHAGEAL INCISION NEC
4210	ESOPHAGOSTOMY NOS
4211	CERVICAL ESOPHAGOSTOMY
4212	ESOPH POUCH EXTERIORIZAT
4219	EXT FISTULIZAT ESOPH NEC
4221	ESOPHAGOSCOPY BY INCIS

4225	OPEN BIOPSY OF ESOPHAGUS
4231	LOC EXCIS ESOPH DIVERTIC
4232	LOCAL EXCIS ESOPHAG NEC
4239	DESTRUCT ESOPHAG LES NEC
4240	ESOPHAGECTOMY NOS
4241	PARTIAL ESOPHAGECTOMY
4242	TOTAL ESOPHAGECTOMY
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
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
427	ESOPHAGOMYOTOMY
4282	SUTURE ESOPHAGEAL LACER
4283	ESOPHAGOSTOMY CLOSURE
4284	ESOPH FISTULA REPAIR NEC
4285	ESOPHAG STRICTURE REPAIR
4286	PROD SUBQ TUNNEL NO ANAS
4287	ESOPHAGEAL GRAFT NEC
4289	ESOPHAGEAL REPAIR NEC
4291	LIGATION ESOPH VARIX
430	GASTROTOMY
431	GASTROTOMY
432	OTHER GASTROSTOMY
433	PYLOROMYOTOMY
4342	LOCAL GASTR EXCISION NEC
4349	LOCAL GASTR DESTRUCT NEC
435	PROXIMAL GASTRECTOMY
436	DISTAL GASTRECTOMY
437	PART GASTREC W JEJ ANAST
4381	PART GAST W JEJ TRANSPOS
4389	PARTIAL GASTRECTOMY NEC
4391	TOT GAST W INTES INTERPO
4399	TOTAL GASTRECTOMY NEC
4400	VAGOTOMY NOS
4401	TRUNCAL VAGOTOMY
4402	HIGHLY SELECT VAGOTOMY
4403	SELECTIVE VAGOTOMY NEC
4411	TRANSABDOMIN GASTROSCOPY
4415	OPEN GASTRIC BIOPSY
442	GASTRIC DIAGNOS PROC NEC
4421	DILATE PYLORUS, INCISION
4429	OTHER PYLOROPLASTY
4431	HIGH GASTRIC BYPASS
4432	PERCU GASTROJEJUNOSTOMY
4438	LAP GASTROENTEROSTOMY (OCT 04)
4439	GASTROENTEROSTOMY NEC
4440	SUTURE PEPTIC ULCER NOS
4441	SUT GASTRIC ULCER SITE
4442	SUTURE DUODEN ULCER SITE
445	REVISION GASTRIC ANASTOM
4461	SUTURE GASTRIC LACERAT
4463	CLOSE GASTRIC FISTUL NEC
4464	GASTROPEXY
4465	ESOPHAGOGASTROPLASTY
4466	CREAT ESOPHAGASTR SPHINC
4467	LAP CREAT ESOPH SPHINCT (OCT 04)
4468	LAPAROSCOP GASTROPLSTY (OCT 04)
4469	GASTRIC REPAIR NEC
4491	LIGATE GASTRIC VARICES
4492	INTRAOP GASTRIC MANIPUL
4495	LAP GASTRIC RESTRIC PROC (OCT 04)
4496	LAP REV GAST RESTRI PROC (OCT 04)
4497	LAP REM GAST RESTRIC DEV (OCT 04)
4498	ADJUST GAST RESTRICT DEV (OCT 04)
4499	GASTRIC OPERATION NEC
4500	INTESTINAL INCISION NOS
4501	DUODENAL INCISION
4502	SMALL BOWEL INCISION NEC
4503	LARGE BOWEL INCISION
4511	TRANSAB SM BOWEL ENDOSC
4515	OPEN SMALL BOWEL BIOPSY
4521	TRANSAB LG BOWEL ENDOSC
4526	OPEN LARGE BOWEL BIOPSY
4531	OTH EXCISE DUODENUM LES
4532	DESTRUCT DUODEN LES NEC
4533	LOCAL EXCIS SM BOWEL NEC
4534	DESTR SM BOWEL LES NEC
4541	EXCISE LG INTESTINE LES
4549	DESTRUC LG BOWEL LES NEC
4550	INTEST SEG ISOLAT NOS
4551	SM BOWEL SEGMENT ISOLAT
4552	LG BOWEL SEGMENT ISOLAT
4561	MULT SEG SM BOWEL EXCIS
4562	PART SM BOWEL RESECT NEC
4563	TOTAL REMOVAL SM BOWEL
4571	MULT SEG LG BOWEL EXCIS
4572	CECECTOMY
4573	RIGHT HEMICOLECTOMY
4574	TRANSVERSE COLON RESECT
4575	LEFT HEMICOLECTOMY
4576	SIGMOIDECTOMY
4579	PART LG BOWEL EXCIS NEC
458	TOT INTRA-ABD COLECTOMY
4581	LAP TOT INTR-AB COLECTMY OCT08-
4582	OP TOT INTR-ABD COLECTMY OCT08-
4583	TOT ABD COLECTMY NEC/NOS OCT08-
4590	INTESTINAL ANASTOM NOS
4591	SM-TO-SM BOWEL ANASTOM
4592	SM BOWEL-RECT STUMP ANAS
4593	SMALL-TO-LARGE BOWEL NEC
4594	LG-TO-LG BOWEL ANASTOM
4595	ANAL ANASTOMOSIS
4601	SM BOWEL EXTERIORIZATION
4602	RESECT EXT SEG SM BOWEL
4603	LG BOWEL EXTERIORIZATION
4604	RESECT EXT SEG LG BOWEL
4610	COLOSTOMY NOS
4611	TEMPORARY COLOSTOMY
4612	TEMPORARY COLOSTOMY
4613	PERMANENT COLOSTOMY
4620	ILEOSTOMY NOS
4621	TEMPORARY ILEOSTOMY

4622 CONTINENT ILEOSTOMY
4623 PERMANENT ILEOSTOMY NEC
4640 INTEST STOMA REVIS NOS
4641 SM BOWEL STOMA REVISION
4642 PERICOLOST HERNIA REPAIR
4643 LG BOWEL STOMA REVIS NEC
4650 INTEST STOMA CLOSURE NOS
4651 SM BOWEL STOMA CLOSURE
4652 LG BOWEL STOMA CLOSURE
4660 INTESTINAL FIXATION NOS
4661 SM BOWEL-ABD WALL FIXAT
4662 SMALL BOWEL FIXATION NEC
4663 LG BOWEL-ABD WALL FIXAT
4664 LARGE BOWEL FIXATION NEC
4671 DUODENAL LACERAT SUTURE
4672 DUODENAL FISTULA CLOSURE
4673 SMALL BOWEL SUTURE NEC
4674 CLOSE SM BOWEL FIST NEC
4675 SUTURE LG BOWEL LACERAT
4676 CLOSE LG BOWEL FISTULA
4679 REPAIR OF INTESTINE NEC
4680 INTRA-AB BOWEL MANIP NOS
4681 INTRA-ABD SM BOWEL MANIP
4682 INTRA-ABD LG BOWEL MANIP
4686 ENDO INSRT COLONIC STENT OCT09-
4687 INSERT COLONIC STENT NEC OCT09-
4691 MYOTOMY OF SIGMOID COLON
4692 MYOTOMY OF COLON NEC
4693 REVISE SM BOWEL ANASTOM
4694 REVISE LG BOWEL ANASTOM
4697 TRANSPLANT OF INTESTINE
4699 INTESTINAL OP NEC
470 INTESTINAL OP NEC
4701 LAP APPENDECTOMY
4709 OTHER APPENDECTOMY
471 OTHER APPENDECTOMY
4711 LAP INCID APPENDECTOMY
4719 OTHER INCID APPENDECTOMY
472 DRAIN APPENDICEAL ABSC
4791 APPENDICOSTOMY
4792 CLOSE APPENDICEAL FISTUL
4799 APPENDICEAL OPS NEC
480 PROCTOTOMY
481 PROCTOSTOMY
4821 TRANSAB PROCTOSIGMOIDOSC
4825 OPEN RECTAL BIOPSY
4835 LOCAL EXCIS RECTAL LES
4840 PULL-THRU RES RECTUM NOS OCT09-
4841 SOAVE SUBMUC RECT RESECT
4842 LAP PULL-THRU RES RECTUM OCT08-
4843 OPN PULL-THRU RES RECTUM OCT08-
4849 PULL-THRU RECT RESEC NEC
485 ABDPERINEAL RECT RESECT
4850 ABDPERNEAL RES RECTM NOS OCT-08
4851 LAP ABDPERNEAL RESC REC OCT08-
4852 OPN ABDPERNEAL RESC REC OCT08-
4859 ABDPERNEAL RESC RECT NEC OCT08-
4861 TRANSSAC RECTOSIGMOIDECT
4862 ANT RECT RESECT W COLOST
4863 ANTERIOR RECT RESECT NEC
4864 POSTERIOR RECT RESECTION
4865 DUHAMEL RECTAL RESECTION
4866 DUHAMEL RECTAL RESECTION
4869 RECTAL RESECTION NEC
4871 SUTURE OF RECTAL LACER
4872 CLOSURE OF PROCTOSTOMY
4873 CLOSE RECTAL FIST NEC
4874 RECTORECTOSTOMY
4875 ABDOMINAL PROCTOPEXY
4876 PROCTOPEXY NEC
4879 REPAIR OF RECTUM NEC
4881 PERIRECTAL INCISION
4882 PERIRECTAL EXCISION
4891 INCIS RECTAL STRICTURE
4892 ANORECTAL MYOMECTOMY
4893 REPAIR PERIRECT FISTULA
4899 RECTAL PERIRECT OP NEC
4901 INCIS PERIANAL ABSCESS
4902 PERIANAL INCISION NEC
4904 PERIANAL EXCISION NEC
4911 ANAL FISTULOTOMY
4912 ANAL FISTULECTOMY
493 ANAL/PERIAN DX PROC NEC
4939 OTHER DESTRUC ANUS LES
4944 HEMORRHOID CRYOTHERAPY
4945 HEMORRHOID LIGATION
4946 HEMORRHOIDECTOMY
4949 HEMORRHOID PROCEDURE NEC
4951 LEFT LAT SPHINCTEROTOMY
4952 POST SPHINCTEROTOMY
4959 ANAL SPHINCTEROTOMY NEC
496 EXCISION OF ANUS
4971 SUTURE ANAL LACERATION
4972 ANAL CERCLAGE
4973 CLOSURE OF ANAL FISTULA
4974 GRACILIS MUSC TRANSPLAN
4975 IMPL OR REV ART ANAL SPH
4976 REMOV ART ANAL SPHINCTER
4979 ANAL SPHINCT REPAIR NEC
4991 INCISION OF ANAL SEPTUM
4992 INSERT SUBQ ANAL STIMUL
4993 ANAL INCISION NEC
4994 REDUCTION ANAL PROLAPSE
4995 CONTROL ANAL HEMORRHAGE
4999 ANAL OPERATION NEC
500 HEPATOTOMY
5012 OPEN LIVER BIOPSY
5013 TRANSJUGULAR LIVER BX OCT08-
5014 LAPAROSCOPIC LIVER BX OCT08-
5019 HEPATIC DX PROC NEC
5021 MARSUPIALIZAT LIVER LES
5022 PARTIAL HEPATECTOMY
5023 OPN ABLTN LIVER LES/TISS OCT06-
5024 PERC ABLTN LIVER LES/TIS OCT06-
5025 LAP ABLTN LIVER LES/TISS OCT06-
5026 ABLTN LIVER LES/TISS NEC OCT06-
5029 DESTRUC HEPATIC LES NEC
503 HEPATIC LOBECTOMY
504 TOTAL HEPATECTOMY
5051 AUXILIARY LIVER TRANSPL
5059 LIVER TRANSPLANT NEC
5061 CLOSURE LIVER LACERAT
5069 LIVER REPAIR NEC
5102 TROCAR CHOLECYSTOSTOMY

5103	CHOLECYSTOSTOMY NEC
5104	CHOLECYSTOTOMY NEC
5113	OPEN BILIARY TRACT BX
5119	BILIARY TR DX PROC NEC
5121	OTH PART CHOLECYSTECTOMY
5122	CHOLECYSTECTOMY
5123	LAPAROSCOPIC CHOLECYSTEC
5124	LAP PART CHOLECYSTECTOMY
5131	GB-TO-HEPAT DUCT ANAST
5132	GB-TO-INTESTINE ANASTOM
5133	GB-TO-PANCREAS ANASTOM
5134	GB-TO-STOMACH ANASTOMOS
5135	GALLBLADDER ANASTOM NEC
5136	CHOLEDOCHOENTEROSTOMY
5137	HEPATIC DUCT-GI ANASTOM
5139	BILE DUCT ANASTOMOS NEC
5141	CDE FOR CALCULUS REMOV
5142	CDE FOR OBSTRUCTION NEC
5143	CHOLEDOCHOHEPAT INTUBAT
5149	INCIS OBSTR BILE DUC NEC
5151	COMMON DUCT EXPLORATION
5159	BILE DUCT INCISION NEC
5161	EXCIS CYST DUCT REMNANT
5162	EXCIS AMPULLA OF VATER
5163	COMMON DUCT EXCIS NEC
5169	BILE DUCT EXCISION NEC
5171	SIMPLE SUT-COMMON DUCT
5172	CHOLEDOCHOPLASTY
5179	BILE DUCT REPAIR NEC
5181	SPHINCTER OF ODDI DILAT
5182	PANCREAT SPHINCTEROTOM
5183	PANCREAT SPHINCTEROPLAS
5189	SPHINCT OF ODDI OP NEC
5191	REPAIR GB LACERATION
5192	CLOSURE CHOLECYSTOSTOMY
5193	CLOS BILIARY FISTUL NEC
5194	REVIS BILE TRACT ANASTOM
5195	REMOVE BILE DUCT PROSTH
5199	BILIARY TRACT OP NEC
5201	CATH DRAIN-PANCREAT CYST
5209	PANCREATOTOMY NEC
5212	OPEN PANCREATIC BIOPSY
5219	PANCREATIC DX PROC NEC
522	PANCREATIC DX PROC NEC
5222	OTHER DESTRU PANCREA LES
523	PANCREAT CYST MARSUPIALI
524	INT DRAIN PANCREAT CYST
5251	PROXIMAL PANCREATECTOMY
5252	DISTAL PANCREATECTOMY
5253	RAD SUBTOT PANCREATECTOM
5259	PARTIAL PANCREATECT NEC
526	TOTAL PANCREATECTOMY
527	RAD PANCREATICODUODENECT
5280	PANCREAT TRANSPLANT NOS
5281	REIMPLANT PANCREATIC TIS
5282	PANCREATIC HOMOTRANSPLAN
5283	PANCREATIC HETEROTRANSPL
5291	TRNSPLNT ISLETS LANG NOS
5292	CANNULATION PANCREA DUC
5295	PANCREATIC REPAIR NEC
5296	PANCREATIC ANASTOMOSIS
5299	PANCREATIC OPERATION NEC
5300	UNILAT ING HERN REP NOS
5301	REPAIR DIRECT ING HERNIA
5302	REPAIR INDIR ING HERNIA
5303	DIR ING HERNIA REP-GRAFT
5304	IND ING HERNIA REP-GRAFT
5305	ING HERNIA REP-GRAFT NOS
5310	BILAT ING HERNIA REP NOS
5311	BILAT DIR ING HERN REP
5312	BILAT IND ING HERN REP
5313	BIL DIR/IND ING HRN REP
5314	BIL DIR ING HRN REP-GRFT
5315	BIL IND ING HRN REP-GRFT
5316	BIL DIR/IND ING HERN-PRO
5317	BIL ING HRN REP-GRFT NOS
5321	UNIL FEMOR HRN REP-GRFT
5329	UNIL FEMOR HERN REP NEC
5331	BIL FEM HERN REPAIR-GRFT
5339	BIL FEM HERN REPAIR NEC
5341	UMBIL HERNIA REPAIR-GRFT
5342	LAP UMBIL HERNIA-GRAFT OCT08-
5343	LAP UMBILICAL HERNIA NEC OCT08-
5349	UMBIL HERNIA REPAIR NEC
5351	INCISIONAL HERNIA REPAIR
5359	ABD WALL HERN REPAIR NEC
5361	INCIS HERNIA REPAIR-GRFT
5362	LAP INCIS HERN REPR-GRFT OCT08-
5363	LAP HERN ANT ABD-GFT NEC OCT08-
5369	ABD HERN REPAIR-GRFT NEC
537	ABD REPAIR-DIAPHR HERNIA
5371	LAP ABD REP-DIAPHR HERN OCT08-
5372	OPN ABD DIAPHRM HERN NEC OCT08-
5375	ABD REP-DIAPHR HERN NOS OCT08-
5380	THOR REP-DIAPH HERN NOS
5381	DIAPHRAGMATIC PLICATION
5382	PARASTERN HERNIA REPAIR
5383	LAP THORC APP-DIAPH HERN OCT08-
5384	OPN THORC DIAPH HERN NEC OCT08-
539	OTHER HERNIA REPAIR
540	ABDOMINAL WALL INCISION
5411	EXPLORATORY LAPAROTOMY
5412	REOPEN RECENT LAP SITE
5419	LAPAROTOMY NEC
5421	LAPAROSCOPY
5422	ABDOMINAL WALL BIOPSY
5423	PERITONEAL BIOPSY
5429	ABD REGION DX PROC NEC
543	DESTRUCT ABD WALL LESION
544	DESTRUCT PERITONEAL TISS
545	DESTRUCT PERITONEAL TISS
5451	LAP PERITON ADHESIOLYSIS
5459	OTH PERITON ADHESIOLYSIS
5461	RECLOSE POST OP DISRUPT
5462	DELAYED CLOS ABD WOUND
5463	ABD WALL SUTURE NEC
5464	PERITONEAL SUTURE
5471	REPAIR OF GASTROSCHISIS
5472	ABDOMEN WALL REPAIR NEC
5473	PERITONEAL REPAIR NEC
5474	OMENTAL REPAIR NEC
5475	MESENTERIC REPAIR NEC
5492	REMOVE FB FROM PERITON
5493	CREATE CUTANPERITON FIST

5494	CREAT PERITONEOVAS SHUNT
5495	PERITONEAL INCISION
5501	NEPHROTOMY
5502	NEPHROSTOMY
5503	PERCU NEPHROSTM W/O FRAG
5504	PERCU NEPHROSTMY W FRAG
5511	PYELOTOMY
5512	PYELOSTOMY
5524	OPEN RENAL BIOPSY
5529	RENAL DIAGNOST PROC NEC
5531	RENAL LES MARSUPIALIZAT
5532	OPN ABLTN RENAL LES/TISS OCT06-
5533	PERC ABLTN RENL LES/TISS OCT06-
5534	LAP ABLTN RENAL LES/TISS OCT06-
5535	ABLTN RENAL LES/TISS NEC OCT06-
5539	LOC DESTR RENAL LES NEC
554	PARTIAL NEPHRECTOMY
5551	NEPHROURETERECTOMY
5552	SOLITARY KIDNEY NEPHRECT
5553	REJECTED KIDNEY NEPHRECT
5554	BILATERAL NEPHRECTOMY
5561	RENAL AUTOTRANSPLANT
5569	KIDNEY TRANSPLANT NEC
557	NEPHROPEXY
5581	SUTURE KIDNEY LACERATION
5582	CLOSE NEPHROST & PYELOST
5583	CLOSE RENAL FISTULA NEC
5584	REDUCE RENAL PEDICL TORS
5585	SYMPHYSIOTOMY
5586	RENAL ANASTOMOSIS
5587	CORRECT URETEROPELV JUNC
5589	RENAL REPAIR NEC
5591	RENAL DECAPSULATION
5597	IMPLANT MECHANIC KIDNEY
5598	REMOV MECHANICAL KIDNEY
5599	RENAL OPERATION NEC
560	TU REMOV URETER OBSTRUCT
561	URETERAL MEATOTOMY
562	URETEROTOMY
5634	OPEN URETERAL BIOPSY
5639	URETERAL DX PROCEDUR NEC
5640	URETERECTOMY NOS
5641	PARTIAL URETERECTOMY
5642	TOTAL URETERECTOMY
5651	FORM CUTAN ILEOURETEROST
5652	REVIS CUTAN ILEOURETEROS
5661	FORM CUTAN URETEROSTOMY
5662	REVIS CUTAN URETEROS NEC
5671	URIN DIVERSION TO BOWEL
5672	REVIS URETEROENTEROSTOMY
5673	NEPHROCYSTANASTOMOSI NOS
5674	URETERONEOCYSTOSTOMY
5675	TRANSURETEROURETEROSTOMY
5679	URETERAL ANASTOMOSIS NEC
5681	INTRALUM URETE ADHESIOLY
5682	SUTURE URETERAL LACERAT
5683	URETEROSTOMY CLOSURE
5684	CLOSE URETER FISTULA NEC
5685	URETEROPEXY
5686	REMOVE URETERAL LIGATURE
5689	REPAIR OF URETER NEC
5692	IMPLANT URETERAL STIMUL
5693	REPLACE URETERAL STIMUL
5694	REMOVE URETERAL STIMULAT
5695	LIGATION OF URETER
5699	URETERAL OPERATION NEC
5712	CYSTOTOMY & ADHESIOLYSIS
5718	OTHER SUPRAPU CYSTOSTOMY
5719	CYSTOTOMY NEC
5721	VESICOSTOMY
5722	REVISE CLO VESICOSTOMY
5733	CLOS TRANSURETH BLADD BX
5734	OPEN BLADDER BIOPSY
5739	BLADDER DIAGNOS PROC NEC
5741	TU ADHESIOLYSIS BLADDER
5749	TU DESTRUC BLADD LES NEC
5751	EXCISION OF URACHUS
5759	BLADDER LES DESTRUCT NEC
576	PARTIAL CYSTECTOMY
5771	RADICAL CYSTECTOMY
5779	TOTAL CYSTECTOMY NEC
5781	SUTURE BLADDER LACERAT
5782	CYSTOSTOMY CLOSURE
5783	ENTEROVESICO FIST REPAIR
5784	VESIC FISTULA REPAIR NEC
5785	CYSTOURETHROPLASTY
5786	BLADDER EXSTROPHY REPAIR
5787	BLADDER RECONSTRUCTION
5788	BLADDER ANASTOMOSIS NEC
5789	BLADDER REPAIR NEC
5791	BLADDER SPHINCTEROTOMY
5793	CONTROL BLADD HEMORRHAGE
5796	IMPLANT BLADDER STIMULAT
5797	REPLACE BLADDER STIMULAT
5798	REMOVE BLADDER STIMULAT
5799	BLADDER OPERATION NEC
580	URETHROTOMY
581	URETHRAL MEATOTOMY
5841	SUTURE URETHRAL LACERAT
5842	URETHROSTOMY CLOSURE
5843	CLOSE URETH FISTULA NEC
5844	URETHRAL REANASTOMOSIS
5845	HYPO-EPISPADIUS REPAIR
5846	URETH RECONSTRUCTION NEC
5847	URETHRAL MEATOPLASTY
5849	URETHRAL REPAIR NEC
585	URETH STRICTURE RELEASE
5891	PERIURETHRAL INCISION
5892	PERIURETHRAL EXCISION
5893	IMPLT ARTF URIN SPHINCT
5899	URETH/PERIURETH OP NEC
5900	RETROPERIT DISSECT NOS
5901	RETROPERIT DISSECT NOS
5902	PERIREN ADHESIOLYS NEC
5903	LAP LYS PERIREN/URET ADH
5909	PERIREN/URETER INCIS NEC
5911	OTH LYS PERIVES ADHESIO
5912	LAP LYS PERIVESURETH ADH
5919	PERIVESICAL INCISION NEC
5921	PERIREN/URETERAL BIOPSY
5929	PERIREN/URET DX PROC NEC
593	URETHROVES JUNCT PLICAT
594	SUPRAPUBIC SLING OP
595	RETROPUBIC URETH SUSPENS

596	PARAURETHRAL SUSPENSION
5971	LEVATOR MUSC SUSPENSION
5979	URIN INCONTIN REPAIR NEC
5991	PERIREN/VESICLE EXCISION
5992	PERIREN/VESICLE OP NEC
600	INCISION OF PROSTATE
6012	OPEN PROSTATIC BIOPSY
6014	OPEN SEMINAL VESICLES BX
6015	PERIPROSTATIC BIOPSY
6018	PROSTATIC DX PROCED NEC
6019	SEMIN VES DX PROCED NEC
602	SEMIN VES DX PROCED NEC
6021	TRANSURETH PROSTATECTOMY
6029	OTH TRANSURETH PROSTATEC
603	SUPRAPUBIC PROSTATECTOMY
604	RETROPUBIC PROSTATECTOMY
605	RADICAL PROSTATECTOMY
6061	LOS EXCIS PROSTATIC LES
6062	PERINEAL PROSTATECTOMY
6069	PROSTATECTOMY NEC
6072	SEMINAL VESICLE INCISION
6073	SEMINAL VESICLE EXCISION
6079	SEMINAL VESICLE OP NEC
6081	PERIPROSTATIC INCISION
6082	PERIPROSTATIC EXCISION
6093	REPAIR OF PROSTATE
6094	CONTROL PROSTATE HEMORR
6095	TRANS BAL DIL PROS URETH
6096	TU DESTR PROSTATE BY MT
6097	OTH TU DESTR PROS - RT
6099	PROSTATIC OPERATION NEC
612	EXCISION OF HYDROCELE
6142	SCROTAL FISTULA REPAIR
6149	SCROTUM/TUNIC REPAIR NEC
6192	EXCISION TUNICA LES NEC
6199	SCROTUM & TUNICA OP NEC
620	INCISION OF TESTES
6212	OPEN TESTICULAR BIOPSY
6219	TESTES DX PROCEDURE NEC
622	TESTICULAR LES DESTRUCT
623	UNILATERAL ORCHIECTOMY
6241	REMOVE BOTH TESTES
6242	REMOVE SOLITARY TESTIS
625	ORCHIOPEXY
6261	SUTURE TESTICULAR LACER
6269	TESTICULAR REPAIR NEC
627	INSERT TESTICULAR PROSTH
6299	TESTICULAR OPERATION NEC
6309	SPERMAT CORD/VAS DX NEC
631	EXC SPERMATIC VARICOCELE
632	EXCISE EPIDIDYMIS CYST
633	EXCISE CORD/EPID LES NEC
634	EPIDIDYMECTOMY
6351	SUTURE CORD & EPID LACER
6353	TRANSPLANT SPERMAT CORD
6359	CORD & EPIDID REPAIR NEC
6381	SUTURE VAS & EPIDID LAC
6382	POSTOP VAS RECONSTRUCT
6383	EPIDIDYMOVASOSTOMY
6385	REMOV VAS DEFERENS VALVE
6389	VAS & EPIDIDY REPAIR NEC
6392	EPIDIDYMOTOMY
6393	SPERMATIC CORD INCISION
6394	SPERM CORD ADHESIOLYSIS
6395	INSERT VALVE IN VAS DEF
6399	CORD/EPID/VAS OPS NEC
6411	PENILE BIOPSY
642	LOCAL EXCIS PENILE LES
643	AMPUTATION OF PENIS
6441	SUTURE PENILE LACERATION
6442	RELEASE OF CHORDEE
6443	CONSTRUCTION OF PENIS
6444	RECONSTRUCTION OF PENIS
6445	REPLANTATION OF PENIS
6449	PENILE REPAIR NEC
645	SEX TRANSFORMAT OP NEC
6492	INCISION OF PENIS
6493	DIVISION OF PENILE ADHES
6495	INS NONINFL PENIS PROSTH
6496	REMOVE INT PENILE PROSTH
6497	INS INFLATE PENIS PROSTH
6498	PENILE OPERATION NEC
6499	MALE GENITAL OP NEC
650	MALE GENITAL OP NEC
6501	LAPAROSCOPIC OOPHOROTOMY
6509	OTHER OOPHOROTOMY
6511	OVARIAN ASPIRAT BIOPSY
6512	OVARIAN BIOPSY NEC
6513	LAP BIOPSY OF OVARY
6514	OTH LAP DX PROC OVARIES
6519	OVARIAN DX PROCEDURE NEC
6521	OVARIAN CYST MARSUPIALIZ
6522	OVARIAN WEDGE RESECTION
6523	LAP MARSUP OVARIAN CYST
6524	LAP WEDGE RESECT OVARY
6525	OTH LAP LOC EXC DEST OVA
6529	LOCAL DESTR OVA LES NEC
653	LOCAL DESTR OVA LES NEC
6531	LAP UNILAT OOPHORECTOMY
6539	OTH UNILAT OOPHORECTOMY
654	OTH UNILAT OOPHORECTOMY
6541	LAP UNI SALPINGO-OOPHOR
6549	OTH UNI SALPINGO-OOPHOR
6551	OTH REMOVE BOTH OVARIES
6552	OTH REMOVE REMAIN OVARY
6553	LAP REMOVE BOTH OVARIES
6554	LAP REMOVE REMAIN OVARY
6561	OTH REMOVE OVARIES/TUBES
6562	OTH REMOVE REM OVA/TUBE
6563	LAP REMOVE OVARIES/TUBES
6564	LAP REMOVE REM OVA/TUBE
6571	OTH SIMPLE SUTURE OVARY
6572	OTH REIMPLANT OF OVARY
6573	OTH SALPINGO-OOPHOROPLAS
6574	LAP SIMPLE SUTURE OVARY
6575	LAP REIMPLANT OF OVARY
6576	LAP SALPINGO-OOPHOROPLAS
6579	REPAIR OF OVARY NEC
658	REPAIR OF OVARY NEC
6581	LAP ADHESIOLYS OVA/TUBE
6589	ADHESIOLYSIS OVARY/TUBE
6591	ASPIRATION OF OVARY
6592	TRANSPLANTATION OF OVARY
6593	MANUAL RUPT OVARIAN CYST

6594	OVARIAN DENERVATION
6595	OVARIAN TORSION RELEASE
6599	OVARIAN OPERATION NEC
660	OVARIAN OPERATION NEC
6601	SALPINGOTOMY
6602	SALPINGOSTOMY
6611	FALLOPIAN TUBE BIOPSY
6619	FALLOP TUBE DX PROC NEC
6621	BILAT ENDOSC CRUSH TUBE
6622	BILAT ENDOSC DIVIS TUBE
6629	BILAT ENDOS OCC TUBE NEC
6631	BILAT TUBAL CRUSHING NEC
6632	BILAT TUBAL DIVISION NEC
6639	BILAT TUBAL DESTRUCT NEC
664	TOTAL UNILAT SALPINGECT
6651	REMOVE BOTH FALLOP TUBES
6652	REMOVE SOLITARY FAL TUBE
6661	DESTROY FALLOP TUBE LES
6662	REMOV TUBE & ECTOP PREG
6663	BILAT PART SALPINGEC NOS
6669	PARTIAL SALPINGECTOM NEC
6671	SIMPL SUTURE FALLOP TUBE
6672	SALPINGO-OOPHOROSTOMY
6673	SALPINGO-SALPINGOSTOMY
6674	SALPINGO-UTEROSTOMY
6679	FALLOP TUBE REPAIR NEC
6692	UNILAT FALLOP TUBE DESTR
6693	IMPL FALLOP TUBE PROSTH
6694	REMOV FALLOP TUBE PROSTH
6695	BLOW THERAPEUT INTO TUBE
6696	FALLOPIAN TUBE DILATION
6697	BURY FIMBRIAE IN UTERUS
6699	FALLOPIAN TUBE OP NEC
6711	ENDOCERVICAL BIOPSY
6712	CERVICAL BIOPSY NEC
6719	CERVICAL DX PROCEDUR NEC
672	CONIZATION OF CERVIX
6731	CERVICAL CYST MARSUPIAL
6732	CERVICAL LES CAUTERIZAT
6733	CERVICAL LES CRYOTHERAPY
6739	CERVICAL LES DESTRUC NEC
674	AMPUTATION OF CERVIX
675	AMPUTATION OF CERVIX
6751	TRANSAB CERCLAGE CERVIX
6759	OTH REP INT CERVICAL OS
6761	SUTURE CERVICAL LACERAT
6762	CERVICAL FISTULA REPAIR
6769	CERVICAL REPAIR NEC
680	HYSTEROTOMY
6813	OPEN UTERINE BIOPSY
6814	OPEN UTERINE LIGAMENT BX
6815	CLOS UTERINE LIGAMENT BX
6816	CLOSED UTERINE BIOPSY
6819	UTERUS/ADNEX DX PROC NEC
6821	ENDOMET SYNECHIAE DIVIS
6822	INCISION UTERINE SEPTUM
6823	ENDOMETRIAL ABLATION
6829	UTERINE LES DESTRUCT NEC
683	UTERINE LES DESTRUCT NEC
6831	LAP SCERVIC HYSTERECTOMY
6839	OTH SUBTOT ABD HYSTERECT OCT03-
684	TOTAL ABD HYSTERECTOMY
6841	LAP TOTAL ABDOMINAL HYST OCT06-
6849	TOTAL ABD HYST NEC/NOS OCT06-
685	VAGINAL HYSTERECTOMY
6851	LAP AST VAG HYSTERECTOMY
6859	VAG HYSTERECTOMY NEC/NOS
686	RADICAL ABD HYSTERECTOMY
6861	LAP RADICAL ABDOMNL HYST OCT06-
6869	RADICAL ABD HYST NEC/NOS OCT06-
687	RADICAL VAG HYSTERECTOMY
6871	LAP RADICAL VAGINAL HYST OCT06-
6879	RADICAL VAG HYST NEC/NOS OCT06-
688	PELVIC EVISCERATION
689	HYSTERECTOMY NEC/NOS
6901	D & C FOR PREG TERMINAT
6902	D & C POST DELIVERY
6909	D & C NEC
6911	D & C NEC
6919	DESTRUC UTER SUPPORT NEC
6921	INTERPOSIT OP UTERIN LIG
6922	UTERINE SUSPENSION NEC
6923	VAG REPAIR INVERS UTERUS
6929	UTERUS/ADNEXA REPAIR NEC
693	PARACERV UTERINE DENERV
6941	SUTURE UTERINE LACERAT
6942	CLOSURE UTERINE FISTULA
6949	UTERINE REPAIR NEC
6951	ASPIRAT CURET-PREG TERMI
6952	ASPIRAT CURET-POST DELIV
6995	INCISION OF CERVIX
6997	REMOVE PENETRAT CERV FB
6998	UTERINE SUPPORT OP NEC
6999	UTERINE OPERATION NEC
7012	CULDOTOMY
7013	INTRALUM VAG ADHESIOLYS
7014	VAGINOTOMY NEC
7023	CUL-DE-SAC BIOPSY
7024	VAGINAL BIOPSY
7029	VAGIN/CUL-DE-SAC DX NEC
7031	HYMENECTOMY
7032	EXCIS CUL-DE-SAC LESION
7033	EXCISION VAGINAL LESION
704	VAGINAL OBLITERATION
7050	CYSTOCEL/RECTOCEL REPAIR
7051	CYSTOCELE REPAIR
7052	RECTOCELE REPAIR
7053	CYSTO & RECTO W GRF/PROS OCT08-
7054	REP CYSTOCEL W GRFT/PROS OCT08-
7055	REP RECTOCELE W GRF/PROS OCT08-
7061	VAGINAL CONSTRUCTION
7062	VAGINAL RECONSTRUCTION
7063	VAGINAL CONST W GRF/PROS OCT08-
7064	VAG RECONST W GRFT/PROS OCT08-
7071	SUTURE VAGINA LACERATION
7072	REPAIR COLOVAGIN FISTULA
7073	REPAIR RECTOVAG FISTULA
7074	REP VAGINOENT FISTUL NEC
7075	REPAIR VAG FISTULA NEC
7076	HYMENORRHAPHY
7077	VAGINAL SUSPENS & FIXAT
7078	VAG SUSP/FIX W GRFT/PROS OCT08-
7079	VAGINAL REPAIR NEC
708	VAGINAL VAULT OBLITERAT

7091	VAGINAL OPERATION NEC
7092	CUL-DE-SAC OPERATION NEC
7093	CUL-DE-SAC GRF/PROS NEC OCT08-
7101	VULVAR ADHESIOLYSIS
7109	INCIS VULVA/PERINEUM NEC
7111	VULVAR BIOPSY
7119	VULVAR DIAGNOS PROC NEC
7122	INCISE BARTHOLIN"S GLAND
7123	BARTHOLIN GLAND MARSUP
7124	DESTRUC BARTHOLIN GLAND
7129	BARTHOLIN"S GLAND OP NEC
713	LOCAL VULVAR EXCIS NEC
714	OPERATIONS ON CLITORIS
715	RADICAL VULVECTOMY
7161	UNILATERAL VULVECTOMY
7162	BILATERAL VULVECTOMY
7171	SUTURE VULVAR LACERATION
7172	REPAIR VULVAR FISTULA
7179	VULVAR/PERIN REPAIR NEC
718	OTHER VULVAR OPERATIONS
719	OTHER FEMALE GENITAL OPS
7394	PUBIOTOMY TO ASSIST DEL
7399	OPS ASSISTING DELIV NEC
740	CLASSICAL C-SECTION
741	LOW CERVICAL C-SECTION
742	EXTRAPERITONEAL C-SECT
743	REM EXTRATUB ECTOP PREG
744	CESAREAN SECTION NEC
7491	HYSTEROTOMY TO TERMIN PG
7499	CESAREAN SECTION NOS
7536	CORRECTION FETAL DEFECT
7550	REPAIR OB LAC UTERUS NOS
7551	REPAIR OB LACERAT CERVIX
7552	REPAIR OB LAC CORP UTERI
7561	REPAIR OB LAC BLAD/URETH
7593	SURG CORR INVERT UTERUS
7599	OBSTETRIC OPERATION NEC
7601	FACIAL BONE SEQUESTRECT
7609	FACIAL BONE INCISION NEC
7611	FACIAL BONE BIOPSY
7619	FACIAL BONE DX PROC NEC
762	DESTRUCT FACIAL BONE LES
7631	PARTIAL MANDIBULECTOMY
7639	PART FACIAL OSTECTOM NEC
7641	TOT MANDIBULEC W RECONST
7642	TOTAL MANDIBULECTOMY NEC
7643	MANDIBULAR RECONST NEC
7644	TOT FACE OSTECT W RECONS
7645	TOT FACE BONE OSTECT NEC
7646	FACIAL BONE RECONSTR NEC
765	TEMPOROMAND ARTHROPLASTY
7661	CL OSTEOPLASTY MAND RAMI
7662	OPEN OSTEOPLAS MAND RAMI
7663	OSTEOPLASTY MANDIBLE BDY
7664	MAND ORTHOGNATHIC OP NEC
7665	SEG OSTEOPLASTY MAXILLA
7666	TOT OSTEOPLASTY MAXILLA
7667	REDUCTION GENIOPLASTY
7668	AUGMENTATION GENIOPLASTY
7669	FACIAL BONE REPAIR NEC
7670	REDUCTION FACIAL FX NOS
7672	OPN REDUCT MALAR/ZYGO FX
7674	OPEN REDUCT MAXILLARY FX
7676	OPEN REDUCT MANDIBLE FX
7677	OPEN REDUCT ALVEOLAR FX
7679	OPEN REDUCT FACE FX NEC
7691	BONE GRAFT TO FACE BONE
7692	SYN IMPLANT TO FACE BONE
7694	OPEN REDUCT TM DISLOCAT
7697	REMOVE INT FIX FACE BONE
7699	FACIAL BONE/JNT OP NEC
7700	SEQUESTRECTOMY NOS
7701	CHEST CAGE SEQUESTREC
7702	HUMERUS SEQUESTRECTOMY
7703	RADIUS & ULNA SEQUESTREC
7704	METACARP/CARP SEQUESTREC
7705	FEMORAL SEQUESTRECTOMY
7706	PATELLAR SEQUESTRECTOMY
7707	TIBIA/FIBULA SEQUESTREC
7708	METATAR/TAR SEQUESTREC
7709	SEQUESTRECTOMY NEC
7710	OTHER BONE INCISION NOS
7711	OTHER CHEST CAGE INCIS
7712	OTHER HUMERUS INCISION
7713	OTHER RADIUS/ULNA INCIS
7714	OTH METACARP/CARP INCIS
7715	OTHER FEMORAL INCISION
7716	OTHER PATELLAR INCISION
7717	OTHER TIBIA/FIBULA INCIS
7718	OTH METATARS/TARS INCIS
7719	BONE INCIS W/O DIV NEC
7720	WEDGE OSTEOTOMY NOS
7721	CHEST CAGE WEDG OSTEOTOM
7722	HUMERUS WEDGE OSTEOTOMY
7723	RADIUS/ULNA WEDG OSTEOTO
7724	METACAR/CAR WEDG OSTEOTO
7725	FEMORAL WEDGE OSTEOTOMY
7726	PATELLAR WEDGE OSTEOTOMY
7727	TIBIA/FIBUL WEDG OSTEOT
7728	METATAR/TAR WEDG OSTEOT
7729	WEDGE OSTEOTOMY NEC
7730	OTHER BONE DIVISION NOS
7731	CHEST CAGE BONE DIV NEC
7732	HUMERUS DIVISION NEC
7733	RADIUS/ULNA DIVISION NEC
7734	METACAR/CAR DIVISION NEC
7735	FEMORAL DIVISION NEC
7736	PATELLAR DIVISION NEC
7737	TIBIA/FIBULA DIV NEC
7738	METATAR/TAR DIVISION NEC
7739	BONE DIVISION NEC
7740	BONE BIOPSY NOS
7741	CHEST CAGE BONE BIOPSY
7742	HUMERUS BIOPSY
7743	RADIUS & ULNA BIOPSY
7744	METACARPAL/CARPAL BIOPSY
7745	FEMORAL BIOPSY
7746	PATELLAR BIOPSY
7747	TIBIA & FIBULA BIOPSY
7748	METATARSAL/TARSAL BIOPSY
7749	BONE BIOPSY NEC
7751	BUNIONECT/SFT/OSTEOTOMY
7752	BUNIONECT/SFT/ARTHRODES
7753	OTH BUNIONECT W SFT CORR

7754 EXC CORRECT BUNIONETTE
7756 REPAIR OF HAMMER TOE
7757 REPAIR OF CLAW TOE
7758 OTH EXC, FUS, REPAIR TOE
7759 BUNIONECTOMY NEC
7760 LOC EXC BONE LESION NOS
7761 EXC CHEST CAGE BONE LES
7762 LOC EXC BONE LES HUMERUS
7763 LOC EXC LES RADIUS/ULNA
7764 LOC EXC LES METACAR/CAR
7765 LOC EXC BONE LES FEMUR
7766 LOC EXC BONE LES PATELLA
7767 LOC EXC LES TIBIA/FIBULA
7768 LOC EXC LES METATAR/TAR
7769 LOC EXC BONE LESION NEC
7770 EXCISE BONE FOR GRFT NOS
7771 EX CHEST CAGE BONE-GFT
7772 EXCISE HUMERUS FOR GRAFT
7773 EXCIS RADIUS/ULNA-GRAFT
7774 EXCIS METACAR/CAR-GRAFT
7775 EXCISE FEMUR FOR GRAFT
7776 EXCISE PATELLA FOR GRAFT
7777 EXCISE TIB/FIB FOR GRAFT
7778 EXCIS METATAR/TAR-GRAFT
7779 EXCISE BONE FOR GFT NEC
7780 OTH PART OSTECTOMY NOS
7781 OTH CHEST CAGE OSTECTOMY
7782 PARTIAL HUMERECTOMY NEC
7783 PART OSTECT-RADIUS/ULNA
7784 PART OSTECT-METACAR/CAR
7785 PART OSTECTOMY-FEMUR
7786 PARTIAL PATELLECTOMY
7787 PART OSTECT-TIBIA/FIBULA
7788 PART OSTECT-METATAR/TAR
7789 PARTIAL OSTECTOMY NEC
7790 TOTAL OSTECTOMY NOS
7791 TOT CHEST CAGE OSTECTOMY
7792 TOTAL OSTECTOMY-HUMERUS
7793 TOT OSTECT-RADIUS/ULNA
7794 TOT OSTECT-METACARP/CARP
7795 TOT OSTECTOMY-FEMUR
7796 TOTAL PATELLECTOMY
7797 TOT OSTECT-TIBIA/FIBULA
7798 TOT OSTECT-METATARS/TARS
7799 TOTAL OSTECTOMY NEC
7800 BONE GRAFT NOS
7801 BONE GRAFT TO CHEST CAGE
7802 BONE GRAFT TO HUMERUS
7803 BONE GRAFT-RADIUS/ULNA
7804 BONE GRFT TO METACAR/CAR
7805 BONE GRAFT TO FEMUR
7806 BONE GRAFT TO PATELLA
7807 BONE GRAFT-TIBIA/FIBULA
7808 BONE GRAFT-METATAR/TAR
7809 BONE GRAFT NEC
7810 APPLIC EXT FIX DEV NOS
7811 APPL EXT FIX-CHEST CAGE
7812 APPLIC EXT FIX-HUMERUS
7813 APPL EXT FIX-RADIUS/ULNA
7814 APPL EXT FIX-METACAR/CAR
7815 APPLIC EXT FIX DEV-FEMUR
7816 APPL EXT FIX DEV-PATELLA
7817 APPL EXT FIX-TIB/FIBULA
7818 APPL EXT FIX-METATAR/TAR
7819 APPLIC EXT FIX DEV NEC
7820 LIMB SHORTEN PROC NOS
7822 LIMB SHORT PROC-HUMERUS
7823 LIMB SHORTEN-RADIUS/ULNA
7824 LIMB SHORTEN-METACAR/CAR
7825 LIMB SHORT PROC-FEMUR
7827 LIMB SHORTEN-TIB/FIBULA
7828 LIMB SHORTEN-METATAR/TAR
7829 LIMB SHORTEN PROC NEC
7830 LIMB LENGTHEN PROC NOS
7831 LIMB LENGTHEN PROC NOS
7832 LIMB LENGTH PROC-HUMERUS
7833 LIMB LENGTH-RADIUS/ULNA
7834 LIMB LENGTH-METACAR/CAR
7835 LIMB LENGTH PROC-FEMUR
7837 LIMB LENGTHEN-TIB/FIBULA
7838 LIMB LENGTHN-METATAR/TAR
7839 LIMB LENGTHEN PROC NEC
7840 OTH BONE REPAIR/PLAST OP
7841 OTH CHEST CAGE REP/PLAST
7842 OTH HUMERUS REPAIR/PLAST
7843 OTH RAD/ULN REPAIR/PLAST
7844 OTH METAC/CARP REP/PLAST
7845 OTH FEMUR REPAIR/PLASTIC
7846 OTH PATELLA REPAIR/PLAST
7847 OTH TIB/FIB REPAIR/PLAST
7848 OTH META/TAR REPA/PLAST
7849 OTH BONE REPA/PLAST NEC
7850 INT FIX W/O FX REDUC NOS
7851 INT FIXATION-CHEST CAGE
7852 INT FIXATION-HUMERUS
7853 INT FIXATION-RADIUS/ULNA
7854 INT FIXATION-METACAR/CAR
7855 INTERNAL FIXATION-FEMUR
7856 INTERNAL FIX-PATELLA
7857 INT FIXATION-TIBIA/FIBUL
7858 INT FIXATION-METATAR/TAR
7859 INT FIX-NO FX REDUCT NEC
7860 REMOVE IMP DEVICE NOS
7861 REMOV IMP DEV-CHEST CAGE
7862 REMOVE IMPL DEV-HUMERUS
7863 REMOV IMP DEV-RADIUS/ULN
7864 REMOV IMP DEV-METAC/CARP
7865 REMOVE IMP DEVICE-FEMUR
7866 REMOV IMP DEVICE-PATELLA
7867 REMOV IMP DEV-TIB/FIBULA
7868 REMOVE IMP DEV-METAT/TAR
7869 REMOVE IMPL DEVICE NEC
7870 OSTEOCLASIS NOS
7871 OSTEOCLASIS-CHEST CAGE
7872 OSTEOCLASIS-HUMERUS
7873 OSTEOCLASIS-RADIUS/ULNA
7874 OSTEOCLASIS-METACAR/CAR
7875 OSTEOCLASIS-FEMUR
7876 OSTEOCLASIS-PATELLA
7877 OSTEOCLASIS-TIBIA/FIBULA
7878 OSTEOCLASIS-METATAR/TAR
7879 OSTEOCLASIS NEC
7880 OTHER BONE DX PROC NOS
7881 OTH DX PROCED-CHEST CAGE

7882	OTH DX PROCED-HUMERUS
7883	OTH DX PROC-RADIUS/ULNA
7884	OTH DX PROC-METACAR/CAR
7885	OTH DX PROCED-FEMUR
7886	OTH DX PROCED-PATELLA
7887	OTH DX PROC-TIBIA/FIBULA
7888	OTH DX PROC-METATAR/TAR
7889	OTHER BONE DX PROC NEC
7890	INSERT BONE STIMUL NOS
7891	INSERT BONE STIMUL-CHEST
7892	INSERT BONE STIM-HUMERUS
7893	INSER BONE STIM-RAD/ULNA
7894	INSER BONE STIM-META/CAR
7895	INSERT BONE STIM-FEMUR
7896	INSERT BONE STIM-PATELLA
7897	INSER BONE STIM-TIB/FIB
7898	INSER BONE STIM-META/TAR
7899	INSERT BONE STIMUL NEC
7910	CL FX REDUC-INT FIX NOS
7911	CLOS RED-INT FIX HUMERUS
7912	CL RED-INT FIX RAD/ULNA
7913	CL RED-INT FIX METAC/CAR
7914	CLOSE RED-INT FIX FINGER
7915	CLOSED RED-INT FIX FEMUR
7916	CL RED-INT FIX TIB/FIBU
7917	CL RED-INT FIX METAT/TAR
7918	CLOSE RED-INT FIX TOE FX
7919	CL FX REDUC-INT FIX NEC
7920	OPEN FX REDUCTION NOS
7921	OPEN REDUC-HUMERUS FX
7922	OPEN REDUC-RADIUS/ULN FX
7923	OPEN REDUC-METAC/CAR FX
7924	OPEN REDUCTION-FINGER FX
7925	OPEN REDUCTION-FEMUR FX
7926	OPEN REDUC-TIBIA/FIB FX
7927	OPEN REDUC-METAT/TARS FX
7928	OPEN REDUCTION-TOE FX
7929	OPEN FX REDUCTION NEC
7930	OPN FX RED W INT FIX NOS
7931	OPEN RED-INT FIX HUMERUS
7932	OP RED-INT FIX RAD/ULNA
7933	OP RED-INT FIX METAC/CAR
7934	OPEN RED-INT FIX FINGER
7935	OPEN REDUC-INT FIX FEMUR
7936	OP RED-INT FIX TIB/FIBUL
7937	OP RED-INT FIX METAT/TAR
7938	OPEN REDUCT-INT FIX TOE
7939	OPN FX RED W INT FIX NEC
7940	CLS REDUC-SEP EPIPHY NOS
7941	CLOSE RED-HUMERUS EPIPHY
7942	CLS RED-RADIUS/UL EPIPHY
7945	CLOSE REDUC-FEMUR EPIPHY
7946	CLS RED-TIBIA/FIB EPIPHY
7949	CLS REDUC-SEP EPIPHY NEC
7950	OPEN RED-SEP EPIPHY NOS
7951	OPN RED-SEP EPIPHY-HUMER
7952	OP RED-RADIUS/ULN EPIPHY
7955	OPN RED-SEP EPIPHY-FEMUR
7956	OP RED-TIBIA/FIB EPIPHYS
7959	OPEN RED-SEP EPIPHY NEC
7960	OPEN FX SITE DEBRIDE NOS
7961	DEBRID OPEN FX-HUMERUS
7962	DEBRID OPN FX-RADIUS/ULN
7963	DEBRID OPN FX-METAC/CAR
7964	DEBRID OPN FX-FINGER
7965	DEBRID OPN FX-FEMUR
7966	DEBRID OPN FX-TIBIA/FIB
7967	DEBRID OPN FX-METAT/TAR
7968	DEBRID OPN FX-TOE
7969	OPEN FX SITE DEBRIDE NEC
7980	OPEN REDUC-DISLOCAT NOS
7981	OPN REDUC DISLOC-SHOULDR
7982	OPEN REDUC-ELBOW DISLOC
7983	OPEN REDUC-WRIST DISLOC
7984	OPN REDUC DISLOC-HAND
7985	OPEN REDUC-HIP DISLOCAT
7986	OPEN REDUC-KNEE DISLOCAT
7987	OPEN REDUC-ANKLE DISLOC
7988	OPN REDUC DISLOC-FT/TOE
7989	OPEN REDUC-DISLOCAT NEC
7990	UNSPEC OP BONE INJ NOS
7991	HUMERUS INJURY OP NOS
7992	RADIUS/ULNA INJ OP NOS
7993	METACARP/CARP INJ OP NOS
7994	FINGER INJURY OP NOS
7995	FEMUR INJURY OP NOS
7996	TIBIA/FIBULA INJ OP NOS
7997	METATARS/TARS INJ OP NOS
7998	TOE INJURY OPERATION NOS
7999	UNSPEC OP-BONE INJ NEC
8000	ARTHROT & PROS REMOV NOS
8001	ARTHROT/PROS REMOV-SHLDR
8002	ARTHROT/PROS REMOV-ELBOW
8003	ARTHROT/PROS REMOV-WRIST
8004	ARTHROT/PROS REMOV-HAND
8005	ARTHROT/PROS REMOV-HIP
8006	ARTHROT/PROS REMOV-KNEE
8007	ARTHROT/PROS REMOV-ANKLE
8008	ARTHROT/PROS REMOV-FOOT
8009	ARTHROT & PROS REMOV NEC
8010	OTHER ARTHROTOMY NOS
8011	OTH ARTHROTOMY-SHOULDER
8012	OTH ARTHROTOMY-ELBOW
8013	OTH ARTHROTOMY-WRIST
8014	OTH ARTHROTOMY-HAND/FNGR
8015	OTH ARTHROTOMY-HIP
8016	OTH ARTHROTOMY-KNEE
8017	OTH ARTHROTOMY-ANKLE
8018	OTH ARTHROTOMY-FOOT/TOE
8019	OTHER ARTHROTOMY NEC
8020	ARTHROSCOPY NOS
8021	SHOULDER ARTHROSCOPY
8022	ELBOW ARTHROSCOPY
8023	WRIST ARTHROSCOPY
8024	HAND & FINGER ARTHROSCOP
8025	HIP ARTHROSCOPY
8026	KNEE ARTHROSCOPY
8027	ANKLE ARTHROSCOPY
8028	FOOT & TOE ARTHROSCOPY
8029	ARTHROSCOPY NEC
8040	JT STRUCTUR DIVISION NOS
8041	SHOULDER STRUCT DIVISION
8042	ELBOW STRUCTURE DIVISION
8043	WRIST STRUCTURE DIVISION

8044	HAND JOINT STRUCT DIVIS
8045	HIP STRUCTURE DIVISION
8046	KNEE STRUCTURE DIVISION
8047	ANKLE STRUCTURE DIVISION
8048	FOOT JOINT STRUCT DIVIS
8049	JT STRUCTUR DIVISION NEC
805	JT STRUCTUR DIVISION NEC
8050	EXC/DEST INTVRT DISC NOS
8051	EXCISION INTERVERT DISC
8053	REP ANULUS FIBROSUS-GRFT OCT08-
8054	REP ANULS FIBROS NEC/NOS OCT08-
8059	OTH EXC/DEST INTVRT DISC
806	EXCIS KNEE SEMILUN CARTL
8070	SYNOVECTOMY-SITE NOS
8071	SHOULDER SYNOVECTOMY
8072	ELBOW SYNOVECTOMY
8073	WRIST SYNOVECTOMY
8074	HAND SYNOVECTOMY
8075	HIP SYNOVECTOMY
8076	KNEE SYNOVECTOMY
8077	ANKLE SYNOVECTOMY
8078	FOOT SYNOVECTOMY
8079	SYNOVECTOMY-SITE NEC
8080	DESTRUCT JOINT LES NOS
8081	DESTRUC-SHOULDER LES NEC
8082	DESTRUC-ELBOW LESION NEC
8083	DESTRUC-WRIST LESION NEC
8084	DESTRUC-HAND JT LES NEC
8085	DESTRUCT-HIP LESION NEC
8086	DESTRUCT-KNEE LESION NEC
8087	DESTRUC-ANKLE LESION NEC
8088	DESTRUC-FOOT JT LES NEC
8089	DESTRUCT JOINT LES NEC
8090	EXCISION OF JOINT NOS
8091	EXCISION OF SHOULDER NEC
8092	EXCISION OF ELBOW NEC
8093	EXCISION OF WRIST NEC
8094	EXCISION HAND JOINT NEC
8095	EXCISION OF HIP NEC
8096	EXCISION OF KNEE NEC
8097	EXCISION OF ANKLE NEC
8098	EXCISION FOOT JOINT NEC
8099	EXCISION OF JOINT NEC
8100	SPINAL FUSION NOS
8101	ATLAS-AXIS FUSION
8102	OTHER CERVICAL FUS ANT
8103	OTHER CERVICAL FUS POST
8104	DORSAL/DORSOLUM FUS ANT
8105	DORSAL/DORSOLUM FUS POST
8106	LUMBAR/LUMBOSAC FUS ANT
8107	LUMBAR/LUMBOSAC FUS LAT
8108	LUMBAR/LUMBOSAC FUS POST
8109	LUMBAR/LUMBOSAC FUS POST
8111	ANKLE FUSION
8112	TRIPLE ARTHRODESIS
8113	SUBTALAR FUSION
8114	MIDTARSAL FUSION
8115	TARSOMETATARSAL FUSION
8116	METATARSOPHALANGEAL FUS
8117	OTHER FUSION OF FOOT
8118	OTHER FUSION OF FOOT
8120	ARTHRODESIS NOS
8121	ARTHRODESIS OF HIP
8122	ARTHRODESIS OF KNEE
8123	ARTHRODESIS OF SHOULDER
8124	ARTHRODESIS OF ELBOW
8125	CARPORADIAL FUSION
8126	METACARPOCARPAL FUSION
8127	METACARPOPHALANGEAL FUS
8128	INTERPHALANGEAL FUSION
8129	ARTHRODESIS NEC
8130	SPINAL REFUSION NOS
8131	REFUSION OF ATLAS-AXIS
8132	REFUSION OF OTH CERV ANT
8133	REFUS OF OTH CERV POST
8134	REFUSION OF DORSAL ANT
8135	REFUSION OF DORSAL POST
8136	REFUSION OF LUMBAR ANT
8137	REFUSION OF LUMBAR LAT
8138	REFUSION OF LUMBAR POST
8139	REFUSION OF SPINE NEC
8140	REPAIR OF HIP, NEC
8141	REPAIR OF HIP, NEC
8142	FIVE-IN-ONE KNEE REPAIR
8143	TRIAD KNEE REPAIR
8144	PATELLAR STABILIZATION
8145	CRUCIATE LIG REPAIR NEC
8146	COLLATERL LIG REPAIR NEC
8147	OTHER REPAIR OF KNEE
8148	OTHER REPAIR OF KNEE
8149	OTHER REPAIR OF ANKLE
8151	TOTAL HIP REPLACEMENT
8152	PARTIAL HIP REPLACEMENT
8153	REVISE HIP REPLACEMENT
8154	TOTAL KNEE REPLACEMENT
8155	REVISE KNEE REPLACEMENT
8156	TOTAL ANKLE REPLACEMENT
8157	REPL JOINT OF FOOT, TOE
8159	REV JT REPL LOW EXT NEC
8161	360 SPINAL FUSION
8162	FUS/REFUS 2-3 VERTEBRAE
8163	FUS/REFUS 4-8 VERTEBRAE
8164	FUS/REFUS 9 VERTEBRAE
8165	VERTEBROPLASTY (OCT 04)
8166	KYPHOPLASTY (OCT 04)
8169	OTH HIP REPAIR JAN80--SEP89 OCT05-
8171	ARTHROPLAS METACARP WIT
8172	ARTHROPLASTY METACAR W/O
8173	TOTAL WRIST REPLACEMENT
8174	ARTHROPLASTY CARPAL WIT
8175	ARTHROPLASTY CARPAL W/O
8179	OTH REPAIR HAN/FIN/WRIS
8180	TOTAL SHOULDER REPLACE
8181	PARTIAL SHOULDER REPLACE
8182	REP RECUR SHLDER DISLOC
8183	SHOULDER ARTHROPLAST NEC
8184	TOTAL ELBOW REPLACEMENT
8185	ELBOW ARTHROPLASTY NEC
8186	ELBOW ARTHROPLASTY NEC
8187	ELBOW ARTHROPLASTY NEC
8193	SUTUR CAPSUL/LIGAMEN ARM
8194	SUTURE CAPSUL/LIG ANK/FT
8195	SUTUR CAPSUL/LIG LEG NEC
8196	OTHER REPAIR OF JOINT

8197 REV JT REPL UPPER EXTREM
8198 OTHER JOINT DX PROCEDURE
8199 JOINT STRUCTURE OP NEC
8201 EXPLOR TEND SHEATH-HAND
8202 MYOTOMY OF HAND
8203 BURSOTOMY OF HAND
8209 INC SOFT TISSUE HAND NEC
8211 TENOTOMY OF HAND
8212 FASCIOTOMY OF HAND
8219 DIV SOFT TISSUE HAND NEC
8221 EXC LES TEND SHEATH HAND
8222 EXCISION HAND MUSCLE LES
8229 EXC LES SFT TISS HND NEC
8231 BURSECTOMY OF HAND
8232 EXCIS HAND TEND FOR GRFT
8233 HAND TENONECTOMY NEC
8234 EXC HND MUS/FAS FOR GRFT
8235 HAND FASCIECTOMY NEC
8236 OTHER MYECTOMY OF HAND
8239 HAND SOFT TISSUE EXC NEC
8241 SUTURE TENDN SHEATH HAND
8242 DELAY SUT FLEX TEND HAND
8243 DELAY SUT HAND TEND NEC
8244 SUTUR FLEX TEND HAND NEC
8245 SUTURE HAND TENDON NEC
8246 SUTURE HAND MUSCLE/FASC
8251 HAND TENDON ADVANCEMENT
8252 HAND TENDON RECESSION
8253 HAND TENDON REATTACHMENT
8254 HAND MUSCLE REATTACHMENT
8255 CHNG HND MUS/TEN LNG NEC
8256 TRANSPLANT HAND TEND NEC
8257 TRANSPOSIT HAND TEND NEC
8258 TRANSPLANT HAND MUSC NEC
8259 TRANSPOSIT HAND MUSC NEC
8261 POLLICIZATION OPERATION
8269 THUMB RECONSTRUCTION NEC
8271 HAND TEND PULLEY RECONST
8272 PLAST OP HND-MUS/FAS GRF
8279 PLAST OP HAND W GRFT NEC
8281 TRANSFER OF FINGER
8282 REPAIR OF CLEFT HAND
8283 REPAIR OF MACRODACTYLY
8284 REPAIR OF MALLET FINGER
8285 OTHER TENODESIS OF HAND
8286 OTHER TENOPLASTY OF HAND
8289 HAND PLASTIC OP NEC
8291 LYSIS OF HAND ADHESIONS
8299 HAND MUS/TEN/FAS/OPS NEC
8301 TENDON SHEATH EXPLORAT
8302 MYOTOMY
8303 BURSOTOMY
8309 SOFT TISSUE INCISION NEC
8311 ACHILLOTENOTOMY
8312 ADDUCTOR TENOTOMY OF HIP
8313 OTHER TENOTOMY
8314 FASCIOTOMY
8319 SOFT TISSUE DIVISION NEC
8321 SOFT TISSUE BIOPSY
8329 SOFT TISSUE DX PROC NEC
8331 EXCIS LES TENDON SHEATH
8332 EXCIS LESION OF MUSCLE
8339 EXC LES SOFT TISSUE NEC
8341 TENDON EXCISION FOR GRFT
8342 OTHER TENONECTOMY
8343 MUSC/FASC EXCIS FOR GRFT
8344 OTHER FASCIECTOMY
8345 OTHER MYECTOMY
8349 OTHER SOFT TISSUE EXCIS
835 BURSECTOMY
8361 TENDON SHEATH SUTURE
8362 DELAYED TENDON SUTURE
8363 ROTATOR CUFF REPAIR
8364 OTHER SUTURE OF TENDON
8365 OTHER MUSCLE/FASC SUTURE
8371 TENDON ADVANCEMENT
8372 TENDON RECESSION
8373 TENDON REATTACHMENT
8374 MUSCLE REATTACHMENT
8375 TENDON TRNSFR/TRANSPLANT
8376 OTHER TENDON TRANSPOSIT
8377 MUSCLE TRNSFR/TRANSPLANT
8379 OTHER MUSCLE TRANSPOSIT
8381 TENDON GRAFT
8382 MUSCLE OR FASCIA GRAFT
8383 TENDON PULLEY RECONSTRUC
8384 CLUBFOOT RELEASE NEC
8385 MUSC/TEND LNG CHANGE NEC
8386 QUADRICEPSPLASTY
8387 OTHER PLASTIC OPS MUSCLE
8388 OTHER PLASTIC OPS TENDON
8389 OTHER PLASTIC OPS FASCIA
8391 ADHESIOLYSIS MUS/TEN/FAS
8392 INSERT SKEL MUSC STIMULA
8393 REMOV SKEL MUSC STIMULAT
8399 MUS/TEN/FAS/BUR OP NEC
8400 UPPER LIMB AMPUTAT NOS
8401 FINGER AMPUTATION
8402 THUMB AMPUTATION
8403 AMPUTATION THROUGH HAND
8404 DISARTICULATION OF WRIST
8405 AMPUTATION THRU FOREARM
8406 DISARTICULATION OF ELBOW
8407 AMPUTATION THRU HUMERUS
8408 SHOULDER DISARTICULATION
8409 FOREQUARTER AMPUTATION
8410 LOWER LIMB AMPUTAT NOS
8411 TOE AMPUTATION
8412 AMPUTATION THROUGH FOOT
8413 DISARTICULATION OF ANKLE
8414 AMPUTAT THROUGH MALLEOLI
8415 BELOW KNEE AMPUTAT NEC
8416 DISARTICULATION OF KNEE
8417 ABOVE KNEE AMPUTATION
8418 DISARTICULATION OF HIP
8419 HINDQUARTER AMPUTATION
8421 THUMB REATTACHMENT
8422 FINGER REATTACHMENT
8423 FOREARM/WRIST/HAND REATT
8424 UPPER ARM REATTACHMENT
8425 TOE REATTACHMENT
8426 FOOT REATTACHMENT
8427 LOWER LEG/ANKLE REATTACH
8428 THIGH REATTACHMENT

8429 REATTACHMENT NEC
843 AMPUTATION STUMP REVIS
8440 IMPLNT/FIT PROS LIMB NOS
8444 IMPLANT ARM PROSTHESIS
8448 IMPLANT LEG PROSTHESIS
8458 IMP INTRSPINE DECOMP DEV OCT05-
8459 INSERT OTH SPIN DEVICE
8460 INSERT DISC PROS NOS (OCT 04)
8461 INS PART DISC PROS CERV (OCT 04)
8462 INS TOT DISC PROST CERV (OCT 04)
8463 INS SPIN DISC PROS THOR (OCT 04)
8464 INS PART DISC PROS LUMB (OCT 04)
8465 INS TOTL DISC PROS LUMB (OCT 04)
8466 REVISE DISC PROST CERV (OCT 04)
8467 REVISE DISC PROST THORA (OCT 04)
8468 REVISE DISC PROSTH LUMB (OCT 04)
8469 REVISE DISC PROSTH NOS (OCT 04)
8480 INS/REPL INTERSPINE DEV OCT08-
8481 REV INTERSPINE DEVICE OCT08-
8482 INS/REPL PDCL STABIL DEV OCT08-
8483 REV PEDCL DYN STABIL DEV OCT08-
8484 INS/REPL FACET REPLC DEV OCT08-
8485 REV FACET REPLACE DEVICE OCT08-
8491 AMPUTATION NOS
8492 SEPARAT EQUAL JOIN TWIN
8493 SEPARAT UNEQUL JOIN TWIN
8499 MUSCULOSKELETAL OP NEC
8512 OPEN BREAST BIOPSY
8520 BREAST TISSU DESTRUC NOS
8521 LOCAL EXCIS BREAST LES
8522 QUADRANT RESECT BREAST
8523 SUBTOTAL MASTECTOMY
8524 EXC ECTOPIC BREAST TISSU
8525 EXCISION OF NIPPLE
8531 UNILAT REDUCT MAMMOPLAST
8532 BILAT REDUCT MAMMOPLASTY
8533 UNIL SUBQ MAMMECT-IMPLNT
8534 UNILAT SUBQ MAMMECT NEC
8535 BIL SUBQ MAMMECT-IMPLANT
8536 BILAT SUBQ MAMMECTOM NEC
8541 UNILAT SIMPLE MASTECTOMY
8542 BILAT SIMPLE MASTECTOMY
8543 UNILAT EXTEN SIMP MASTEC
8544 BILAT EXTEND SIMP MASTEC
8545 UNILAT RADICAL MASTECTOM
8546 BILAT RADICAL MASTECTOMY
8547 UNIL EXT RAD MASTECTOMY
8548 BIL EXTEN RAD MASTECTOMY
8550 AUGMENT MAMMOPLASTY NOS
8553 UNILAT BREAST IMPLANT
8554 BILATERAL BREAST IMPLANT
856 MASTOPEXY
857 TOTAL BREAST RECONSTRUCT
8570 TOTL RECONSTC BREAST NOS OCT-09
8571 LATISS DORSI MYOCUT FLAP OCT08-
8572 TRAM FLAP, PEDICLED OCT08-
8573 TRAM FLAP, FREE OCT08-
8574 DIEP FLAP, FREE OCT08-
8575 SIEA FLAP, FREE OCT08-
8576 GAP FLAP, FREE OCT08-
8579 TOTL RECONST BREAST NEC OCT08-
8582 BREAST SPLIT-THICK GRAFT
8583 BREAST FULL-THICK GRAFT
8584 BREAST PEDICLE GRAFT
8585 BREAST MUSCLE FLAP GRAFT
8586 TRANSPOSITION OF NIPPLE
8587 NIPPLE REPAIR NEC
8589 MAMMOPLASTY NEC
8593 BREAST IMPLANT REVISION
8594 BREAST IMPLANT REMOVAL
8595 INSER BREAST TISSU EXPAN
8596 REMOV BREAST TISSU EXPAN
8599 BREAST OPERATION NEC
8606 INSERT INFUSION PUMP
8621 EXCISION OF PILONID CYST
8622 EXC WOUND DEBRIDEMENT
8625 DERMABRASION
864 RADICAL EXCIS SKIN LES
8660 FREE SKIN GRAFT NOS
8661 FULL-THICK HAND SKIN GRF
8662 HAND SKIN GRAFT NEC
8663 FULL-THICK SKIN GRFT NEC
8665 HETEROGRAFT TO SKIN
8666 HOMOGRAFT TO SKIN
8667 DERMAL REGENER GRAFT
8669 FREE SKIN GRAFT NEC
8670 PEDICLE GRAFT/FLAP NOS
8671 CUT & PREP PEDICLE GRAFT
8672 PEDICLE GRAFT ADVANCEMEN
8673 ATTACH PEDICLE TO HAND
8674 ATTACH PEDICLE GRAFT NEC
8675 REVISION OF PEDICLE GRFT
8681 REPAIR FACIAL WEAKNESS
8682 FACIAL RHYTIDECTOMY
8683 SIZE REDUCT PLASTIC OP
8684 RELAXATION OF SCAR
8685 SYNDACTYLY CORRECTION
8686 ONYCHOPLASTY
8689 SKIN REPAIR & PLASTY NEC
8691 SKIN EXCISION FOR GRAFT
8693 INSERT TISSUE EXPANDER
8694 INS/REPL SINGLE PUL GEN (OCT 04)
8695 INS/REPL DUAL PULSE GEN (OCT 04)
8696 INSERT/REPL OTH NEUROST (OCT 04)
8697 INS/REP 1 PUL GEN OCT05-
8698 INS/REP 2 PUL GEN OCT05-
8753 INTRAOPER CHOLANGIOGRAM
9227 RADIOACTIVE ELEM IMPLANT OCT-09
9504 ANESTHETIZED EYE EXAM

Appendix B – Surgical DRGs

For discharges using DRGs (before October 1, 2007)

DRG	TITLE
003	CRANIOTOMY, AGE 0-17
004*	SPINAL PROCEDURES
005*	EXTRACRANIAL VASCULAR PROCEDURES
006	CARPAL TUNNEL RELEASE
007	PERIPHERAL AND CRANIAL NERVE AND OTHER NERVOUS SYSTEM PROCEDURES W/ CC
008	PERIPHERAL AND CRANIAL NERVE AND OTHER NERVOUS SYSTEM PROCEDURES W/O CC
036	RETINAL PROCEDURES
037	ORBITAL PROCEDURES
038	PRIMARY IRIS PROCEDURES
039	LENS PROCEDURES W/ OR W/O VITRECTOMY
041	EXTRAOCULAR PROCEDURES EXCEPT ORBIT, AGE 0-17
042	INTRAOCULAR PROCEDURES EXCEPT RETINA, IRIS AND LENS
049	MAJOR HEAD AND NECK PROCEDURES
050	SIALOADENECTOMY
051	SALIVARY GLAND PROCEDURES EXCEPT SIALOADENECTOMY
052	CLEFT LIP AND PALATE REPAIR
054	SINUS AND MASTOID PROCEDURES, AGE 0-17
055	MISCELLANEOUS EAR, NOSE, MOUTH AND THROAT PROCEDURES
056	RHINOPLASTY
058	TONSILLECTOMY AND ADNOIDECTOMY PROCEDURES EXCEPT TONSILLECTOMY AND/OR ADENOIDECTOMY ONLY, AGE 0-17
060	TONSILLECTOMY AND/OR ADENOIDECTOMY ONLY, AGE 0 – 17
062	MYRINGOTOMY W/ TUBE INSERTION, AGE 0-17
063	OTHER EAR, NOSE, MOUTH AND THROAT OR PROCEDURES
075	MAJOR CHEST PROCEDURES
076	OTHER RESPIRATORY SYSTEM OR PROCEDURES W/ CC
077	OTHER RESPIRATORY SYSTEM OR PROCEDURES W/O CC
103	HEART TRANSPLANT
104	CARDIAC VALVE AND OTHER MAJOR CARDIOTHORACIC PROCEDURES W/ CARDIAC CATHETERIZATION
105	CARDIAC VALVE AND OTHER MAJOR CARDIOTHORACIC PROCEDURES W/O CARDIAC CATHETERIZATION
106	CORONARY BYPASS W/ PTCA
107	CORONARY BYPASS W/ CARDIAC CATHETERIZATION
108	OTHER CARDIOTHORACIC PROCEDURES
109	CORONARY BYPASS W/O CARDIAC CATHETERIZATION
110	MAJOR CARDIOVASCULAR PROCEDURES W/ CC
111	MAJOR CARDIOVASCULAR PROCEDURES W/O CC
112*	PERCUTANEOUS CARDIOVASCULAR PROCEDURES
113	AMPUTATION FOR CIRCULATORY SYSTEM DISORDERS EXCEPT UPPER LIMB AND TOE
114	UPPER LIMB AND TOES AMPUTATION FOR CIRCULATORY SITE
115	PERMANENT CARDIAC PACEMAKER IMPLANT W/ ACUTE MYOCARDIAL INFARCTION, HEART FAILURE OR SHOCK OR ACID LEAD OR GENERATOR PROCEDURE
116	OTHER PERMANENT CARDIAC PACEMAKER IMPLANT OR PTCA W/ CORONARY ARTERIAL STENT
117	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT
118	CARDIAC PACEMAKER DEVICE REPLACEMENT
119	VEIN LIGATION AND STRIPPING
120	OTHER CIRCULATORY SYSTEM OR PROCEDURES
146	RECTAL RESECTION W/ CC
147	RECTAL RESECTION W/O CC
148	MAJOR SMALL AND LARGE BOWEL PROCEDURES W/ CC
149	MAJOR SMALL AND LARGE BOWEL PROCEDURES W/O CC
150	PERITONEAL ADHESIOLYSIS W/ CC
151	PERITONEAL ADHESIOLYSIS W/O CC
152	MINOR SMALL AND LARGE BOWEL PROCEDURES W/ CC
153	MINOR SMALL AND LARGE BOWEL PROCEDURES W/O CC
156	STOMACH, ESOPHAGEAL AND DUODENAL PROCEDURES, AGE 0-17
157	ANAL AND STOMAL PROCEDURES W/ CC
158	ANAL AND STOMAL PROCEDURES W/O CC
163	HERNIA PROCEDURES, AGE 0-17
164	APPENDECTOMY W/ COMPLICATED PRINCIPAL DIAGNOSIS W/ CC
165	APPENDECTOMY W/ COMPLICATED PRINCIPAL DIAGNOSIS WIHTOUT CC
166	APPENDECTOMY W/O COMPLICATED PRINCIPAL IAGNOSIS W/ CC

DRG	TITLE
167	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAGNOSIS W/O CC
168	MOUTH PROCEDURES W/ CC
169	MOUTH PROCEDURES W/O CC
170	OTHER DIGESTIVE SYSTEM OR PROCEDURES W/ CC
171	OTHER DIGESTIVE SYSTEM OR PROCEDURES W/O CC
191	PANCREAS, LIVER AND SHUNT PROCEDURES W/ CC
192	PANCREAS, LIVER AND SHUNT PROCEDURES W/O CC
193	BILIARY TRACT PROCEDURES EXCEPT ONLY CHOLECYSTECTOIMY W/ OR W/O COMMON DUCT EXPLORATION W/ CC
194	BILIARY TRACT PROCEDURES EXCEPT ONLY CHOLECYSTECTOMY W/ OR W/O COMMON DUCT EXPLORATION W/O CC
195	CHOLECYSTECTOMY W/ COMMON DUCT EXPLORATION W/ CC
196	CHOLECYSTECTOMY W/ COMMON DUCT EXPLORATION W/O CC
197	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O COMMON DUCT EXPLORATION W/ CC
198	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O COMMON DUCT EXPORTATION W/O CC
199	HEPATOBILIARY DIAGNOSTIC PROCEDURE FOR MALIGNANCY
200	HEPATOBILIARY DIAGNOSTIC PROCEDURE FOR NONMALIGNANCY
201	OTHER HEPATOBILIARY OR PANCREAS OR PROCEDURES
209	MAJOR JOINT AND LIMB REATTACHMENT PROCEDURES OF LOWER EXTREMITY
212	HIP AND FEMUR PROCEDURES EXCEPT MAJOR JOINT PROCEDURE, AGE 0-17
213	AMPUTATION FOR MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE DISORDERS
214*	BACK & NECK PROCEDURES W CC
215*	BACK & NECK PROCEDURES W/O CC
216	BIOPSIES OF MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE
217	WOUND DEBRIDEMENT AND SKIN GRAFT EXCEPT HAND FOR MUSCULOSKELETAL AND CONNECTIVE TISSUE DISORDERS
220	LOWER EXTREMITY AND HUMERUS PROCEDURES EXCEPT HIP, FOOT AND FEMUR, AGE 0-17
221*	KNEE PROCEDURES W CC
222*	KNEE PROCEDURES W/O CC
223	MAJOR SHOULDER/ELBOW PROCEDURES OR OTHER UPPER EXTREMITY PROCEDURES W/ CC
224	SHOULDER, ELBOW OR FOREARM PROCEDURES EXCEPT MAJOR JOINT PROCEDURES W/O CC
225	FOOT PROCEDURES
226	SOFT TISSUE PROCEDURES W/ CC
227	SOFT TISSUE PROCEDURES W/O CC
228	MAJOR THUMB OR JOINT PROCEDURES OR OTHER HAND OR WRIST PROCEDURES W/ CC
229	HAND OR WRIST PROCEDURES EXCEPT MAJOR JOINT PROCEDURES W/O CC
230	LOCAL EXCISION AND REMOVAL OF INTERNAL FIXATION DEVICES OF HIP AND FEMUR
231*	LOCAL EXCISION AND REMOVAL OF INTERNAL FIXATION DEVICES EXCEPT HIP AND FEMUR
232	ARTHROSCOPY
233	OTHER MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE OR PROCEDURES W/ CC
234	OTHER MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE OR PROCEDURES 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 PROCEDURE FOR NONMALIGNANCY EXCEPT BIOPSY AND LOCAL EXCISION
262	BREAST BIOPSY AND LOCAL EXCISION FOR NONMALIGNANCY
263	SKIN GRAFT AND/OR DEBRIDEMENT FOR SKIN ULCER OR CELLULITIS W/ CC
264	SKIN GRAFT AND OR DEBRIDEMENT FOR SKIN ULCER OR CELLULITIS W/O CC
265	SKIN GRAFT AND OR DEBRIDEMENT EXCEPT FOR SKIN ULCER OR CELLULITIS W/ CC
266	SKIN GRAFT AND/OR DEBRIDEMENT EXCEPT FOR SKIN ULCER OR CELLUTLITIES W/O CC
267	PERIANAL AND PILONIDAL PROCEDURES
268	SKIN, SUBCUTANEOUS TISSUE AND BREAST PLASTIC PROCEDURES
269	OTHER SKIN, SUBCUTANEOUS TISSUE AND BREAST PROCEDURES W/ CC
270	OTHER SKIN, SUBCUTANEOUS TISSUE AND BREAST PROCEDURS W/O CC
285	AMPUTAETION OF LOWER LIMB FOR ENDOCRINE, NUTRITIONAL AND METABOLIC DISORDERS
286	ADRENAL AND PITUITARY PROCEDURES

DRG	TITLE
287	SKIN GRAFTS AND WOUND DEBRIDEMENTS FOR ENDOCRINE, NUTRITIONAL AND METABOLIC DISORDERS
288	OR PROCEDURES FOR OBESITY
289	PARATHYROID PROCEDURES
290	THYROID PROCEDURES
291	THYROGLOSSAL PROCEDURES
292	OTHER ENDOCRINE, NUTRITIONAL AND METABOLIC OR PROCEDURES W/ CC
293	OTHER ENDOCRINE, NUTRITIONAL AND METABOLIC OR PROCEDURES W/O CC
302	KIDNEY TRANSPLANT
303	KIDNEY, URETER AND MAJOR BLADDER PROCEDURES FOR NEOPLASM
304	KIDNEY, URETER AND MAJOR BLADDER PROCEDURES FOR NONNEOPLASMS W/ CC
305	KIDNEY, URETER AND MAJOR BLADDER PROCEDURES FOR NONEOPLSMS W/O 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 AND URINARY TRACT OR PROCEDURES
334	MAJOR MALE PELVIC PROCEDURES W/ CC
335	MAJOR MALE PELVIC PROCEDURES W/O CC
336	TRANSURETHRAL PROSTATECTOMY W/ CC
337	TRANSURETHRAL PROSTATECTOMY W/O CC
338	TESTES PROCEDURES FOR MALIGNANCY
340	TESTES PROCEDURES FOR NONMALIGNANCY, AGE 0-17
341	PENIS PROCEDURES
343	CIRCUMCISION, AGE 0-17
344	OTHER MALE REPRODUCTIVE SYSTEM OR PROCEDURES FOR MALIGNANCY
345	OTHER MALE REPRODUCTIVE SYSTEM OR PROCEDURES EXCEPT FOR MALIGNANCY
353	PELVIC EVISCERATION, RADICAL HYSTERECTOMY AND RADICAL VULVECTOMY
354	UTERINE AND ADNEXA PROCEDURES FOR NONOVARIAN/ADNEXAL MALIGNANCY W/ CC
355	UTERINE AND ADNEXA PROCEDURES FOR NONOVARIAN/ADNEXA PROCEDURES W/O CC
356	FEMALE REPRODUCTIVE SYSTEM RECONSTRUCTIVE PROCEDURES
357	UTERINE AND ADNEXA PROCEDURES FOR OVARIAN OR ADNEXAL MALIGNANCY
358	UTERINE AND ADNEXA PROCEDURES FOR NONMALIGNANCY W/ CC
359	UTERINE AND ADNEXA PROCEDURES FOR NONMALIGNANCY W/O CC
360	VAGINA, CERVIX AND VULVA PROCEDURES
361	LAPAROSCOPY AND INCISIONAL TUBAL INTERRUPTION
362	ENDOSCOPIC TUBAL INTERRUPTION
363	D AND C, CONIZATION AND RADIOIMPLANT FOR MALIGNANCY
364	D AND C, CONIZATION EXCEPT FOR MALIGNANCY
365	OTHER FEMALE REPRODUCTIVE SYSTEM OR PROCEDURES
370	CESAREAN SECTION W/ CC
371	CESAREAN SECTION W/O CC
374	VAGINAL DELIVERY W/ STERILIZATION AND/OR D AND C
375	VAGINAL DELIVERY W/ OR PROCEDURE EXCEPT STERILIZATION AND/OR D AND C
377	POSTPARTUM AND POSTABORTION DIAGNOSES W/ OR PROCEDURE
381	ABORTION W/ D AND C ASPIRATION CURETTAGE OR HYSTERECTOMY
393	SPLENECTOMY, AGE 0-17
394	OTHER OR PROCEDURES OF THE BLOOD AND BLOOD-FORMING ORGANS
400*	LYMPHOMA AND LEUKEMIA W/ MAJOR OR PROCEDURES
401	LYMPHOMA AND NONACUTE LEUKEMIA W/ OTHER OR PROCEDURE W/ CC
402	LYMPHOMA AND NONACUTE LEUKEMIA W/ OTHER OR PROCEDURE W/O CC
406	MYELOPROLIFERATIVE DISORDERS OR POORLY DIFFERENTIATED NEOPLASMS W/ MAJOR OR PROCEDURES W/ CC
407	MYELOPROLIFERATIVE DISORDERS OR POORLY DIFFERENTIATED NEOPLASMS W/ MAJOR OR PROCEDURES W/O CC
408	MYELOPROLIFERATIVE DISORDERS OR POORLY DIFFERENTIATED NEOPLASMS W/ OTHER OR PROCEDURES
415	OR PROCEDURE FOR INFECTIOUS AND PARASITIC DISEASES
424	OR PROCEDURES W/ PRINCIPAL DIAGNOSIS OF MENTAL ILLNESS
439	SKIN GRAFTS FOR INJURIES
440	WOUND DEBRIDEMENTS FOR INJURIES
441	HAND PROCEDURES FOR INJURIES
442	OTHER OR PROCEDURES FOR INJURIES W/ CC
443	OTHER OR PROCEDURES FOR INJURIES W/O CC
458*	NON-EXTENSIVE BURNS W SKIN GRAFT
459*	NON-EXTENSIVE BURNS W WOUND DEBRIDEMENT OR OTHER O.R. PROC

DRG	TITLE
461	OR PROCEDURES W/ DIAGNOSES OF OTHER CONTACT W/ HEALTH SERVICES
468	EXTENSIVE OR PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS
471	BILATERAL OR MULTIPLE MAJOR JOINT PROCEDURES OF LOWER EXTREMITY
472*	EXTENSIVE BURNS W O.R. PROCEDURE
476	PROSTATIC OR PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS
477	NONEXTENSIVE OR PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS
478	OTHER VASCULAR PROCEDURES W/ CC
479	OTHER VASCULAR PROCEDURES W/O CC
480	LIVER TRANSPLANT
481	BONE MARROW TRANSPLANT
482	TRACHEOSTOMY FOR FACE, MOUTH AND NECK DIAGNOSES
483*	TRACHEOSTOMY EXCEPT FOR FACE, MOUTH AND NECK DIAGNOSES
484	CRANIOTOMY FOR MULTIPLE SIGNIFICANT TRAUMA
485	LIMB REATTACHMENT, HIP AND FEMUR PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA
486	OTHER OR PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA
488	HIV W/ EXTENSIVE OR PROCEDURE
491	MAJOR JOINT AND LIMB REATTACHMENT PROCEDURES OF UPPER EXTREMITY
493	LAPAROSCOPIC CHOLECYSTECTOMY W/O COMMON DUCT EXPLORATION W/ CC
494	LAPAROSCOPIC CHOLECYSTECTOMY W/O COMMON DUCT EXPLORATION W/O CC
495	LUNG TRANSPLANT
496	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION
497	SPINAL FUSION W/ CC
498	SPINAL FUSION W/O CC
499	BACK AND NECK PROCEDURES EXCEPT SPINAL FUSION W/ CC
500	BACK AND NECK PROCEDURES EXCEPT SPINAL FUSION W/O CC
501	KNEE PROCEDURES W/ PRINCIPAL DIAGNOSIS OF INFECTION, W/ CC
502	KNEE PROCEDURES W/ PRINCIPAL DIAGNOSIS OF INFECTION, W/O CC
503	KNEE PROCEDURES W/O PRINCIPAL DIAGNOSIS OF INFECTION
504	EXTENSIVE 3RD DEGREE BURNS W SKIN GRAFT
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
512	SIMULTANEOUS PANCREAS/KIDNEY TRANSPLANT
513	PANCREAS TRANSPLANT
514*	CARDIAC DEFIBRILLATOR IMPLANT W CARDIAC CATH
515	CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH
516	PERCUTANEOUS CARDIOVASC PROC W AMI
517	PERC CARDIO PROC W NON-DRUG ELUTING STENT W/O AMI
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	HEART ASSIST SYSTEM IMPLANT (OCT 02)
526	PERCUTNEOUS CARDIOVASULAR PROC W DRUG ELUTING STENT W AMI (APR 03)
527	PERCUTNEOUS CARDIOVASULAR PROC W DRUG ELUTING STENT W/O AMI (APR 03)
528	INTRACRANIAL VASCULAR PROC W PDX HEMORRHAGE (OCT 03)
529	VENTRICULAR SHUNT PROCEDURES W CC (OCT 03)
530	VENTRICULAR SHUNT PROCEDURES W/O CC (OCT 03)
531	SPINAL PROCEDURES W CC (OCT 03)
532	SPINAL PROCEDURES W/O CC (OCT 03)
533	EXTRACRANIAL PROCEDURES W CC (OCT 03)
534	EXTRACRANIAL PROCEDURES W/O CC (OCT 03)
535	CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK (OCT 03)
536	CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK (OCT 03)
537	LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W CC (OCT 03)
538	LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W/O CC (OCT 03)
539	LYMPHOMA & LEUKEMIA W MAJOR OR PROCEDURE W CC (OCT 03)
540	LYMPHOMA & LEUKEMIA W MAJOR OR PROCEDURE W/O CC (OCT 03)
541	TRACH W MV 96+HRS OR PDX EXC FACE, MTH, FACE & NECK DX W/MAJ OR OCT04-
542	TRACH W MV 96+HRS OR PDX EXC FACE, MTH, FACE & NECK DX W/O MJ OR OCT04-
543	CRANIOTOMY WITH IMPLANTATION OF CHEMOTHERAPEUTIC AGENT OR ACUTE COMPLEX CENTRAL NERVOUS SYSTEM PRINCIPAL DIAGNOSIS OCT04-
544	MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY OCT05-
545	REVISION OF HIP OR KNEE REPLACEMENT OCT05-

DRG	TITLE
546	SPINAL FUSION EXC CERV WITH CURVATURE OF THE SPINE OR MALIG OCT05-
547	CORONARY BYPASS W CARDIAC CATH W MAJOR CV DX OCT05-
548	CORONARY BYPASS W CARDIAC CATH W/O MAJOR CV DX OCT05-
549	CORONARY BYPASS W/O CARDIAC CATH W MAJOR CV DX
550	CORONARY BYPASS W/O CARDIAC CATH W/O MAJOR CV DX OCT05-
551	PERMANENT CARDIAC PACEMAKER IMPL W MAJ CV DX OR AICD LEAD OR GNRTR OCT05-
552	OTHER PERMANENT CARDIAC PACEMAKER IMPLANT W/O MAJOR CV DX OCT05-
553	OTHER VASCULAR PROCEDURES W CC W MAJOR CV DX OCT05-
554	OTHER VASCULAR PROCEDURES W CC W/O MAJOR CV DX OCT05-
555	PERCUTANEOUS CARDIOVASCULAR PROC W MAJOR CV DX OCT05-
556	PERCUTANEOUS CARDIOVASC PROC W NON-DRUG-ELUTING STENT W/O MAJ CV DX OCT05-
557	PERCUTANEOUS CARDIOVASCULAR PROC W DRUG-ELUTING STENT W MAJOR CV DX OCT05-
558	PERCUTANEOUS CARDIOVASCULAR PROC W DRUG-ELUTING STENT W/O MAJ CV DX OCT05-
569	MAJOR SMALL & LARGE BOWEL PROCEDURES W CC W MAJOR GI DX OCT06-
570	MAJOR SMALL & LARGE BOWEL PROCEDURES W CC W/O MAJOR GI DX OCT06-
573	MAJOR BLADDER PROCEDURES OCT06-
577	CAROTID ARTERY STENT PROCEDURE OCT06-
578	INFECTIOUS & PARASITIC DISEASES W OR PROCEDURE OCT06-
579	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W OR PROCEDURE OCT06-

Appendix C – Surgical 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
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
008	SIMULTANEOUS PANCREAS/KIDNEY TRANSPLANT
009	BONE MARROW 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
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
025	CRANIOTOMY & ENDOVASCULAR INTRACRANIAL PROCEDURES W MCC
026	CRANIOTOMY & ENDOVASCULAR INTRACRANIAL PROCEDURES W CC
027	CRANIOTOMY & ENDOVASCULAR INTRACRANIAL PROCEDURES W/O 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
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
135	SINUS & MASTOID PROCEDURES W 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
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

MS-DRG	TITLE
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
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 ANEURYSM REPAIR
238	MAJOR CARDIOVASC 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 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 W MCC
251	PERC CARDIOVASC PROC W/O CORONARY ARTERY STENT W/O MCC
252	OTHER VASCULAR PROCEDURES W MCC
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
265	AICD LEAD PROCEDURES
326	STOMACH, ESOPHAGEAL & DUODENAL PROC W MCC
327	STOMACH, ESOPHAGEAL & DUODENAL PROC W CC
328	STOMACH, ESOPHAGEAL & DUODENAL PROC W/O CC/MCC
329	MAJOR SMALL & LARGE BOWEL PROCEDURES W MCC
330	MAJOR SMALL & LARGE BOWEL PROCEDURES W CC

MS-DRG	TITLE
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
335	PERITONEAL ADHESIOLYSIS W MCC
336	PERITONEAL ADHESIOLYSIS W CC
337	PERITONEAL ADHESIOLYSIS W/O CC/MCC
338	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W MCC
339	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W CC
340	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG 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
350	INGUINAL & FEMORAL HERNIA PROCEDURES W MCC
351	INGUINAL & FEMORAL HERNIA PROCEDURES W CC
352	INGUINAL & FEMORAL HERNIA PROCEDURES W/O CC/MCC
353	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL W MCC
354	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL W CC
355	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL 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
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
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
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

MS-DRG	TITLE
466	REVISION OF HIP OR KNEE REPLACEMENT W MCC
467	REVISION OF HIP OR KNEE REPLACEMENT W CC
468	REVISION OF HIP OR KNEE 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
480	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT W MCC
481	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT W CC
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
492	LOWER EXTREM & HUMER PROC EXCEPT HIP,FOOT,FEMUR W MCC
493	LOWER EXTREM & HUMER PROC EXCEPT HIP,FOOT,FEMUR W CC
494	LOWER EXTREM & HUMER PROC EXCEPT HIP,FOOT,FEMUR W/O CC/MCC
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
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
573	SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W MCC
574	SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W CC
575	SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS 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

MS-DRG	TITLE
581	OTHER SKIN, SUBCUT TISS & BREAST 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 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
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
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
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 FOR NEOPLASM 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
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
671	URETHRAL PROCEDURES W 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
711	TESTES PROCEDURES W CC/MCC
712	TESTES 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

MS-DRG	TITLE
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
741	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W/O CC/MCC
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
799	SPLENECTOMY W 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
820	LYMPHOMA & LEUKEMIA W MAJOR O.R. PROCEDURE W MCC
821	LYMPHOMA & LEUKEMIA W MAJOR O.R. PROCEDURE W CC
822	LYMPHOMA & LEUKEMIA W MAJOR O.R. PROCEDURE W/O CC/MCC
823	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W MCC
824	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W CC
825	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W/O CC/MCC
826	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC W MCC
827	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC W CC
828	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC W/O CC/MCC
829	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W OTHER O.R. PROC W CC/MCC
830	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W OTHER O.R. PROC W/O CC/MCC
853	INFECTIOUS & PARASITIC DISEASES W O.R. PROCEDURE W MCC
854	INFECTIOUS & PARASITIC DISEASES W O.R. PROCEDURE W CC
855	INFECTIOUS & PARASITIC DISEASES W O.R. PROCEDURE W/O CC/MCC
856	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W O.R. PROC W MCC
857	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W O.R. PROC W CC
858	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W O.R. PROC W/O CC/MCC
876	O.R. PROCEDURE W PRINCIPAL DIAGNOSES OF MENTAL ILLNESS
901	WOUND DEBRIDEMENTS FOR INJURIES W MCC
902	WOUND DEBRIDEMENTS FOR INJURIES W CC
903	WOUND DEBRIDEMENTS FOR INJURIES W/O CC/MCC
904	SKIN GRAFTS FOR INJURIES W CC/MCC
905	SKIN GRAFTS FOR INJURIES W/O CC/MCC
906	HAND PROCEDURES FOR INJURIES
907	OTHER O.R. PROCEDURES FOR INJURIES W MCC
908	OTHER O.R. PROCEDURES FOR INJURIES W CC
909	OTHER O.R. PROCEDURES FOR INJURIES W/O CC/MCC
927	EXTENSIVE BURNS OR FULL THICKNESS BURNS W MV 96+ HRS W SKIN GRAFT
928	FULL THICKNESS BURN W SKIN GRAFT OR INHAL INJ W CC/MCC
929	FULL THICKNESS BURN W SKIN GRAFT OR INHAL INJ W/O CC/MCC
939	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES W MCC
940	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES W CC

MS-DRG	TITLE
941	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES W/O CC/MCC
955	CRANIOTOMY FOR MULTIPLE SIGNIFICANT TRAUMA
956	LIMB REATTACHMENT, HIP & FEMUR PROC FOR MULTIPLE SIGNIFICANT TRAUMA
957	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA W MCC
958	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA W CC
959	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA W/O CC/MCC
969	HIV W EXTENSIVE O.R. PROCEDURE W MCC
970	HIV W EXTENSIVE O.R. PROCEDURE W/O MCC
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

Appendix D – Medical DRGs

Medical Discharge DRGs:

DRG	TITLE
009	SPINAL DISORDERS AND INJURIES
010	NERVOUS SYSTEM NEOPLASMS W/ CC
011	NERVOUS SYSTEM NEOPLASMS W/ CC
012	DEGENERATIVE NERVOUS SYSTEM DISORDERS
013	MULTIPLE SCLEROSIS AND CEREBELLAR ATAXIA
014	SPECIFIC CEREBROVASCULAR DISORDERS EXCEPT TRANSIENT ISCHEMIC ATTACK
015	TRANSIENT ISCHEMIC ATTACK AND PRECEREBRAL OCCLUSIONS
016	NONSPECIFIC CEREBROVASCULAR DISORDERS W/ CC
017	NONSPECIFIC CEREBROVASCULAR DISORDERS W/O CC
018	CRANIAL AND PERIPHERAL NERVE DISORDERS W/ CC
019	CRANIAL AND PERIPHERAL NERVE DISORDERS W/O CC
020	NERVOUS SYSTEM INFECTION EXCEPT VIRAL MENINGITIS
021	VIRAL MENINGITIS
022	HYPERTENSIVE ENCEPHALOPATHY
023	NONTRAUMATIC STUPOR AND COMA
026	SEIZURE AND HEADACHE, AGE 0-17
027	TRAUMATIC STUPOR AND COMA, COMA GREATER THAN ONE HOUR
030	TRAUMATIC STUPOR AND COMA, COMA LESS THAN ONE HOUR, AGE 0-17
033	CONCUSSION, AGE 0-17
034	OTHER DISORDERS OF NERVOUS SYSTEM W/ CC
035	OTHER DISORDERS OF NERVOUS SYSTEM W/O CC
043	HYPHEMA
044	ACUTE MAJOR EYE INFECTIONS
045	NEUROLOGICAL EYE DISORDERS
048	OTHER DISORDERS OF THE EYE, AGE 0-17
064	EAR, NOSE, MOUTH AND THROAT MALIGNANCY
065	DISEQUILIBRIA
066	EPISTAXIS
067	EPIGLOTTITIS
070	OTITIS MEDIA AND URI, AGE 0-17
071	LARYNGOTRACHEITIS
072	NASAL TRAUMA AND DEFORMITY
074	OTHER EAR, NOSE, MOUTH AND THROAT DIAGNOSES, AGE 0-17
078	PULMONARY EMBOLISM
081	RESPIRATORY INFECTIONS AND INFLAMMATIONS, AGE 0-17
082	RESPIRATORY NEOPLASMS
083	MAJOR CHEST TRAUMA W/ CC
084	MAJOR CHEST TRAUMA W/O CC

DRG	TITLE
085	PLEURAL EFFUSION W/ CC
086	PLEURAL EFFUSION W/O CC
087	PULMONARY EDEMA AND RESPIRATORY FAILURE
088	CHRONIC OBSTRUCTIVE PULMONARY DISEASE
091	SIMPLE PNEUMONIA AND PLEURISY, AGE 0-17
092	INTERSTITIAL LUNG DISEASE W/ CC
093	INTERSTITIAL LUNG DISEASE W/O CC
094	PNEUMOTHORAX W/ CC
095	PNEUMOTHORAX W/O CC
098	BRONCHITIS AND ASTHMA, AGE 0-17
099	RESPIRATORY SIGNS AND SYMPTOMS W/ CC
100	RESPIRATORY SIGNS AND SYMPTOMS W/O CC
101	OTHER RESPIRATORY SYSTEM DIAGNOSES W/ CC
102	OTHER RESPIRATORY SYSTEM DIAGNOSES W/O CC
121	CIRCULATORY DISORDERS W/ ACUTE MYOCARDIAL INFARCTION AND MAJOR COMPLICATION, DISCHARGED ALIVE
122	CIRCULATORY DISORDERS W/ ACUTE MYOCARDIAL INFARCTION W/O MAJOR COMPLICATION, DISCHARGED ALIVE
123	CIRCULATORY DISORDERS W/ ACUTE MYOCARDIAL INFARCTION, EXPIRED
124	CIRCULATORY DISORDERS EXCEPT ACUTE MYOCARDIAL INFARCTION W/ CARDIAC CATHETERIZATION AND COMPLEX DIAGNOSIS
125	CIRCULATORY DISORDERS EXCEPT ACUTE MYOCARDIAL INFARCTION W/ CARDIAC CATHETERIZATION W/O COMPLEX DIAGNOSIS
126	ACUTE AND SUB ACUTE ENDOCARDITIS
127	HEART FAILURE AND SHOCK
128	DEEP VEIN THROMBOPHLEBITIS
129	CARDIAC ARREST, UNEXPLAINED
130	PERIPHERAL VASCULAR DISORDERS W/ CC
131	PERIPHERAL VASCULAR DISORDERS W/O CC
132	ATHEROSCLEROSIS W/ CC
133	ATHEROSCLEROSIS W/O CC
134	HYPERTENSION
137	CARDIAC CONGENITAL AND VALVULAR DISORDERS, AGE 0 - 17
138	CARDIAC ARRHYTHMIA AND CONDUCTION DISORDERS W/ CC
139	CARDIAC ARRHYTHMIA AND CONDUCTION DISORDERS W/O CC
140	ANGINA PECTORIS
141	SYNCOPE AND COLLAPSE W/ CC

DRG	TITLE
142	SYNCOPE AND COLLAPSE W/O CC
143	CHEST PAIN
144	OTHER CIRCULATORY SYSTEM DIAGNOSES W/ CC
145	OTHER CIRCULATORY SYSTEM DIAGNOSES W/O CC
172	DIGESTIVE MALIGNANCY W/ CC
173	DIGESTIVE MALIGNANCY W/O CC
174	GI HEMORRHAGE W/ CC
175	GI HEMORRHAGE W/O CC
176	COMPLICATED PEPTIC ULCER
177	UNCOMPLICATED PEPTIC ULCER W/ CC
178	UNCOMPLICATED PEPTIC ULCER W/O CC
179	INFLAMMATORY BOWEL DISEASE
180	GI OBSTRUCTION W/ CC
181	GI OBSTRUCTION W/O CC
184	ESOPHAGITIS, GASTROENTERITIS AND MISCELLANESOU DIGESTIVE DISORDERS, AGE 0-17
186	DENTAL AND ORAL DISEASED EXCEPT EXTRACTIONS AND RESTORATIONS, AGE 0-17
187	DENTAL EXTRACTIONS AND RESTORATIONS
190	OTHER DIGESTIVE SYSTEM DIAGNOSES, AGE 0-17
202	CIRRHOSIS AND ALCOHOLIC HEPATITIS
203	MALIGNANCY OF HEPATOBILIARY SYSTEM OR PANCREAS
204	DISORDERS OF PANCREAS EXCEPT MALIGNANCY
205	DISORDERS OF LIVER EXCEPT MALIGNANCY, CIRRHOSIS AND ALCOHOLIC HEPATITIS W/ CC
206	DISORDERS OF LIVER EXCEPT MALIGNANCY, CIRRHOSIS AND ALCOHOLIC HEPATITIS W/O CC
207	DISORDERS OF THE BILIARY TRACT W/ CC
208	DISORDERS OF THE BILIARY TRACT W/O CC
235	FRACTURES OF FEMUR
236	FRACTURES OF HIP AND PELVIS
237	SPRAINS, STRAINS AND DISLOCATIONS OF HIP, PELVIS AND THIGH
238	OSTEOMYELITIS
239	PATHOLOGICAL FRACTURES AND MUSCULOSKELETAL AND CONNECTIVE TISSUE MALIGNANCY
240	CONNECTIVE TISSUE DISORDERS W/ CC
241	CONNECTIVE TISSUE DISORDERS W/O CC
242	SEPTIC ARTHRITIS
243	MEDICAL BACK PROBLEMS
244	BONE DISEASES AND SPECIFIC ARTHROPATHIES W/ CC
245	BONE DISEASES AND SPECIFIC ARTHROPATHIES W/O CC
246	NONSPECIFIC ARTHROPATHIES
247	SIGNS AND SYMPTOMS OF MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE
248	TENDONITIS, MYOSITIS AND BURSITIS
249	AFTERCARE, MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE
252	FRACTURES, SPRAINS, STRAINS AND DISLOCATIONS OF FOREARM, HAND AND FOOT, AGE 0-17
255	FRACTURES, SPRAINS, STRAINS AND DISLOCATIONS OF UPPER ARM AND LOWER LEG EXCEPT FOOT, AGE 0-17
256	OTHER MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE DIAGNOSES
271	SKIN ULCERS
272	MAJOR SKIN DISORDERS W/ CC
273	MAJOR SKIN DISORDERS W/O CC
274	MALIGNANT BREAST DISORDERS W/ CC
275	MALIGNANT BREAST DISORDERS W/O CC
276	NONMALIGNANT BREAST DISORDERS
279	CELLULITIS, AGE 0-17
282	TRAUMA TO SKIN, SUBCUTANEOUS TISSUE AND BREAST, AGE 0-17
283	MINOR SKIN DISORDERS W/ CC
284	MINOR SKIN DISORDERS W/O CC
295	DIABETES, AGE 0-35
298	NUTRITIONAL AND MISCELLANEOUS METABOLIC DISORDERS, AGE 0-17
299	INBORN ERRORS OF METABOLISM
300	ENDOCRINE DISORDERS W/ CC
301	ENDOCRINE DISORDERS W/O CC
316	RENAL FAILURE
317	ADMISSION FOR RENAL DIALYSIS
318	KIDNEY AND URINARY TRACT NEOPLASMS W/ CC
319	KIDNEY AND URINARY TRACT NEOPLASMS W/O CC
322	KIDNEY AND URINARY TRACT INFECTION, AGE 0-17
323	URINARY STONES W/ CC AND/ OR ESW LITHOTRIPSY
324	URINARY STONES W/O CC
327	KIDNEY AND URINARY TRACT SIGNS AND SYMPTOMS, AGE 0-17
330	URETHRAL STRICTURE, AGE 0-17
333	OTHER KIDNEY AND URINARY TRACT DIAGNOSES, AGE 0-17
346	MALIGNANCY OF MALE REPRODUCTIVE SYSTEM W/ CC
347	MALIGNANCY OF MALE REPRODUCTIVE SYSTEM W/O CC
348	BENIGN PROSTATIC HYPERTROPHY W/ CC
349	BENIGN PROSTATIC HYPERTROPHY W/O CC
350	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM
351	STERILIZATION, MALE
352	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES

DRG	TITLE
366	MALIGNANCY OF FEMALE REPRODUCTIVE SYSTEM W/ CC
367	MALIGNANCY OF FEMALE REPRODUCTIVE SYSTEM W/O CC
368	INFECTIONS OF FEMALE REPRODUCTIVE SYSTEM
369	MENSTRUAL AND OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS
372	VAGINAL DELIVERY W/ COMPLICATING DIAGNOSES
373	VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES
376	POSTPARTUM AND POSTABORTION DIAGNOSES W/O OR PROCEDURE
378	ENTOPIC PREGNANCY
379	THREATENED ABORTION
380	ABORTION W/O D AND G
382	FALSE LABOR
383	OTHER ANTEPARTUM DIAGNOSES W/ MEDICAL COMPLICATIONS
384	OTHER ANTEPARTUM DIAGNOSES W/O MEDICAL COMPLICATIONS
385	NEONATES DIED OR TRANSFERRED TO ANOTHER ACUTE FACILITY
386	EXTREME IMMATURITY OR RESPIRATORY DISTRESS SYNDROME NEONATE
387	PREMATURITY W MAJOR PROBLEMS
388	PREMATURITY W/O MAJOR PROBLEMS
389	FULL TERM NEONATE W MAJOR PROBLEM
390	NEONATE W OTHER SIGNIFICANT PROBLEM
391	NORMAL NEWBORN
396	RED BLOOD CELL DISORDERS, AGE 0-17
397	COAGULATION DISORDERS
398	RETICULOENDOTHELIAL AND IMMUNITY DISORDERS W/ CC
399	RETICULOENDOTHELIAL AND IMMUNITY DISORDERS W/O CC
403	LYMPHOMA AND NONACUTE LEUKEMIA W/ CC
404	LYMPHOMA AND NONACUTE LEUKEMIA W/O CC
405	ACUTE LEUKEMIA W/O MAJOR OR PROCEDURE, AGE 0-17
409	RADIOTHERAPY
410	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS
411	HISTORY OF MALIGNANCY W/O ENDOSCOPY
412	HISTORY OF MALIGNANCY W/ ENDOSCOPY
413	OTHER MYELOPROLIFERATIVE DISORDERS OR POORLY DIFFERENTIATED NEOPLASM DIAGNOSES W/ CC
414	OTHER MYELOPROLIFERATIVE DISORDERS OR POORLY DIFFERENTIATED NEOPLASM DIAGNOSES W/O CC
417	SEPTICEMIA, AGE 0-17
418	POSTOPERATIVE AND POSTTRAUMATIC INFECTIONS
422	VIRAL ILLNESS AND FEVER OF UNKNOWN ORIGIN, AGE 0-17
423	OTHER INFECTIOUS AND PARASITIC DISEASES DIAGNOSES
425	ACUTE ADJUSTMENT REACTIONS AND DISTURBANCES OF PSYCHOSOCIAL DYSFUNCTION
426	DEPRESSIVE NEUROSES
427	NEUROSES EXCEPT DEPRESSIVE
428	DISORDERS OF PERSONALITY AND IMPULSE CONTROL
429	ORGANIC DISTURBANCES AND MENTAL RETARDATION
430	PSYCHOSES
431	CHILDHOOD MENTAL DISORDERS
432	OTHER MENTAL DISORDER DIAGNOSES
433	ALCOHOL/DRUG ABUSE OR DEPENDENCE, LEFT AGAINST MEDICAL ADVICE
434*	ALCOHOL/DRUG ABUSE OR DEPENDENCE, DETOXIFICATION OR OTHER SYMPTOMATIC TREATMENT W/ CC
435*	ALCOHOL/DRUG ABUSE OR DEPENDENCE, DETOXIFICATION OR OTHER SYMPTOMATIC TREATMENT W/O CC
436*	ALCOHOL/DRUG DEPENDENCE W/ REHABILITATION THERAPY
437*	ALCOHOL DRUG DEPENDENCE W/ COMBINED REHABILITATION AND DETOXIFICATION THERAPY
446	TRAUMATIC INJURY, AGE 0-17
448	ALLERGIC REACTIONS, AGE 0-17
451	POISONING AND TOXIC EFFECTS OF DRUGS, AGE 0-17
452	COMPLICATIONS OF TREATMENT W/ CC
453	COMPLICATIONS OF TREATMENT W/O CC
454	OTHER INJURY, POISONING AND TOXIC EFFECT DIAGNOSES W/ CC
455	OTHER INJURY, POISONING AND TOXIC EFFECT DIAGNOSES W/O CC
456*	BURNS, TRANSFERRED TO ANOTHER ACUTE CARE FACILITY
457*	EXTENSIVE BURNS W/O O.R. PROCEDURE
460*	NON-EXTENSIVE BURNS W/O O.R. PROCEDURE
462	REHABILITATION
463	SIGNS AND SYMPTOMS W/ CC
464	SIGNS AND SYMPTOMS W/O CC

DRG	TITLE
465	AFTERCARE W/ HISTORY OF MALIGNANCY AS SECONDARY DIAGNOSIS
466	AFTERCARE W/O HISTORY OF MALIGNANCY AS SECONDARY DIAGNOSIS
467	OTHER FACTORS INFLUENCING HEALTH STATUS
475	RESPIRATORY SYSTEM DIAGNOSIS W/ VENTILATOR SUPPORT
487	OTHER MULTIPLE SIGNIFICANT TRAUMA
489	HIV W/ MAJOR RELATED CONDITION
490	HIV W/ OR W/O OTHER RELATED CONDITION
492	CHEMOTHERAPY W/ ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS
505	EXTENSIVE 3RD DEGREE BURNS W/O SKIN GRAFT
508	FULL THICKNESS BURN W/O SKIN GRFT OR INHAL INJ W CC OR SIG TRAUMA
509	FULL THICKNESS BURN W/O SKIN GRFT OR INH INJ W/O CC OR SIG TRAUMA
510	NON-EXTENSIVE BURNS W CC OR SIGNIFICANT TRAUMA
511	NON-EXTENSIVE BURNS W/O CC OR SIGNIFICANT TRAUMA
521	ALCOHOL/DRUG ABUSE OR DEPENDENCE W CC
522	ALC/DRUG ABUSE OR DEPEND W REHABILITATION THERAPY W/O CC
523	ALC/DRUG ABUSE OR DEPEND W/O REHABILITATION THERAPY W/O CC
524	TRANSIENT ISCHEMIA
559	ACUTE ISCHEMIC STROKE WITH USE OF THROMBOLYTIC AGENT OCT05-
560	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM OCT06-
561	NON-BACTERIAL INFECTIONS OF NERVOUS SYSTEM EXCEPT VIRAL MENINGITIS OCT06-
565	RESPIRATORY SYSTEM DIAGNOSIS WITH VENTILATOR SUPPORT 96+ HOURS OCT06-
566	RESPIRATORY SYSTEM DIAGNOSIS WITH VENTILATOR SUPPORT < 96 HOURS OCT06-
571	MAJOR ESOPHAGEAL DISORDERS OCT06-
572	MAJOR GASTROINTESTINAL DISORDERS AND PERITONEAL INFECTIONS OCT06-
574	MAJOR HEMATOLOGIC/IMMUNOLOGIC DIAG EXC SICKLE CELL CRISIS & COAGUL OCT06-

* No longer valid in FY2005

Appendix E – Medical MS-DRGs

For medical discharges using MS-DRGs (on or after October 1, 2007)

MS-DRG	TITLE
052	SPINAL DISORDERS & INJURIES W CC/MCC
053	SPINAL DISORDERS & INJURIES W/O CC/MCC
054	NERVOUS SYSTEM NEOPLASMS W MCC
055	NERVOUS SYSTEM NEOPLASMS W/O MCC
056	DEGENERATIVE NERVOUS SYSTEM DISORDERS W MCC
057	DEGENERATIVE NERVOUS SYSTEM DISORDERS W/O MCC
058	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA W MCC
059	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA W CC
060	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA 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
064	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION W MCC
065	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION W CC
066	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION W/O CC/MCC
067	NONSPECIFIC CVA & PRECEREBRAL OCCLUSION W/O INFARCT W MCC
068	NONSPECIFIC CVA & PRECEREBRAL OCCLUSION W/O INFARCT W/O MCC
069	TRANSIENT ISCHEMIA
070	NONSPECIFIC CEREBROVASCULAR DISORDERS W MCC
071	NONSPECIFIC CEREBROVASCULAR DISORDERS W CC
072	NONSPECIFIC CEREBROVASCULAR DISORDERS W/O CC/MCC
073	CRANIAL & PERIPHERAL NERVE DISORDERS W MCC
074	CRANIAL & PERIPHERAL NERVE DISORDERS W/O MCC
075	VIRAL MENINGITIS W CC/MCC
076	VIRAL MENINGITIS W/O CC/MCC
077	HYPERTENSIVE ENCEPHALOPATHY W MCC
078	HYPERTENSIVE ENCEPHALOPATHY W CC
079	HYPERTENSIVE ENCEPHALOPATHY W/O CC/MCC
080	NONTRAUMATIC STUPOR & COMA W MCC
081	NONTRAUMATIC STUPOR & COMA W/O MCC
082	TRAUMATIC STUPOR & COMA, COMA >1 HR W MCC
083	TRAUMATIC STUPOR & COMA, COMA >1 HR W CC
084	TRAUMATIC STUPOR & COMA, COMA >1 HR W/O CC/MCC
085	TRAUMATIC STUPOR & COMA, COMA <1 HR W MCC
086	TRAUMATIC STUPOR & COMA, COMA <1 HR W CC
087	TRAUMATIC STUPOR & COMA, COMA <1 HR W/O CC/MCC
088	CONCUSSION W MCC
089	CONCUSSION W CC
090	CONCUSSION W/O CC/MCC
091	OTHER DISORDERS OF NERVOUS SYSTEM W MCC
092	OTHER DISORDERS OF NERVOUS SYSTEM W CC
093	OTHER DISORDERS OF NERVOUS SYSTEM W/O CC/MCC
094	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM W MCC
095	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM W CC
096	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM W/O CC/MCC
097	NON-BACTERIAL INFECT OF NERVOUS SYS EXC VIRAL MENINGITIS W MCC
098	NON-BACTERIAL INFECT OF NERVOUS SYS EXC VIRAL MENINGITIS W CC
099	NON-BACTERIAL INFECT OF NERVOUS SYS EXC VIRAL MENINGITIS W/O CC/MCC
100	SEIZURES W MCC
101	SEIZURES W/O MCC
102	HEADACHES W MCC
103	HEADACHES W/O MCC
121	ACUTE MAJOR EYE INFECTIONS W CC/MCC
122	ACUTE MAJOR EYE INFECTIONS W/O CC/MCC
123	NEUROLOGICAL EYE DISORDERS
124	OTHER DISORDERS OF THE EYE W MCC
125	OTHER DISORDERS OF THE EYE W/O MCC
146	EAR, NOSE, MOUTH & THROAT MALIGNANCY W MCC
147	EAR, NOSE, MOUTH & THROAT MALIGNANCY W CC
148	EAR, NOSE, MOUTH & THROAT MALIGNANCY W/O CC/MCC
149	DYSEQUILIBRIUM

MS-DRG	TITLE
150	EPISTAXIS W MCC
151	EPISTAXIS W/O MCC
152	OTITIS MEDIA & URI W MCC
153	OTITIS MEDIA & URI W/O MCC
154	OTHER EAR, NOSE, MOUTH & THROAT DIAGNOSES W MCC
155	OTHER EAR, NOSE, MOUTH & THROAT DIAGNOSES W CC
156	OTHER EAR, NOSE, MOUTH & THROAT DIAGNOSES W/O CC/MCC
157	DENTAL & ORAL DISEASES W MCC
158	DENTAL & ORAL DISEASES W CC
159	DENTAL & ORAL DISEASES W/O CC/MCC
175	PULMONARY EMBOLISM W MCC
176	PULMONARY EMBOLISM W/O MCC
177	RESPIRATORY INFECTIONS & INFLAMMATIONS W MCC
178	RESPIRATORY INFECTIONS & INFLAMMATIONS W CC
179	RESPIRATORY INFECTIONS & INFLAMMATIONS W/O CC/MCC
180	RESPIRATORY NEOPLASMS W MCC
181	RESPIRATORY NEOPLASMS W CC
182	RESPIRATORY NEOPLASMS W/O CC/MCC
183	MAJOR CHEST TRAUMA W MCC
184	MAJOR CHEST TRAUMA W CC
185	MAJOR CHEST TRAUMA W/O CC/MCC
186	PLEURAL EFFUSION W MCC
187	PLEURAL EFFUSION W CC
188	PLEURAL EFFUSION W/O CC/MCC
189	PULMONARY EDEMA & RESPIRATORY FAILURE
190	CHRONIC OBSTRUCTIVE PULMONARY DISEASE W MCC
191	CHRONIC OBSTRUCTIVE PULMONARY DISEASE W CC
192	CHRONIC OBSTRUCTIVE PULMONARY DISEASE W/O CC/MCC
193	SIMPLE PNEUMONIA & PLEURISY W MCC
194	SIMPLE PNEUMONIA & PLEURISY W CC
195	SIMPLE PNEUMONIA & PLEURISY W/O CC/MCC
196	INTERSTITIAL LUNG DISEASE W MCC
197	INTERSTITIAL LUNG DISEASE W CC
198	INTERSTITIAL LUNG DISEASE W/O CC/MCC
199	PNEUMOTHORAX W MCC
200	PNEUMOTHORAX W CC
201	PNEUMOTHORAX W/O CC/MCC
202	BRONCHITIS & ASTHMA W CC/MCC
203	BRONCHITIS & ASTHMA W/O CC/MCC
204	RESPIRATORY SIGNS & SYMPTOMS
205	OTHER RESPIRATORY SYSTEM DIAGNOSES W MCC
206	OTHER RESPIRATORY SYSTEM DIAGNOSES W/O MCC
207	RESPIRATORY SYSTEM DIAGNOSIS W VENTILATOR SUPPORT 96+ HOURS
208	RESPIRATORY SYSTEM DIAGNOSIS W VENTILATOR SUPPORT <96 HOURS
280	ACUTE MYOCARDIAL INFARCTION, DISCHARGED ALIVE W MCC
281	ACUTE MYOCARDIAL INFARCTION, DISCHARGED ALIVE W CC
282	ACUTE MYOCARDIAL INFARCTION, DISCHARGED ALIVE W/O CC/MCC
283	ACUTE MYOCARDIAL INFARCTION, EXPIRED W MCC
284	ACUTE MYOCARDIAL INFARCTION, EXPIRED W CC
285	ACUTE MYOCARDIAL INFARCTION, EXPIRED W/O CC/MCC
286	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH W MCC
287	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH W/O MCC
288	ACUTE & SUBACUTE ENDOCARDITIS W MCC
289	ACUTE & SUBACUTE ENDOCARDITIS W CC
290	ACUTE & SUBACUTE ENDOCARDITIS W/O CC/MCC
291	HEART FAILURE & SHOCK W MCC
292	HEART FAILURE & SHOCK W CC
293	HEART FAILURE & SHOCK W/O CC/MCC
294	DEEP VEIN THROMBOPHLEBITIS W CC/MCC
295	DEEP VEIN THROMBOPHLEBITIS W/O CC/MCC
296	CARDIAC ARREST, UNEXPLAINED W MCC
297	CARDIAC ARREST, UNEXPLAINED W CC
298	CARDIAC ARREST, UNEXPLAINED W/O CC/MCC
299	PERIPHERAL VASCULAR DISORDERS W MCC
300	PERIPHERAL VASCULAR DISORDERS W CC
301	PERIPHERAL VASCULAR DISORDERS W/O CC/MCC
302	ATHEROSCLEROSIS W MCC
303	ATHEROSCLEROSIS W/O MCC
304	HYPERTENSION W MCC
305	HYPERTENSION W/O MCC
306	CARDIAC CONGENITAL & VALVULAR DISORDERS W MCC
307	CARDIAC CONGENITAL & VALVULAR DISORDERS W/O MCC
308	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W MCC
309	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W CC
310	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W/O CC/MCC
311	ANGINA PECTORIS
312	SYNCOPE & COLLAPSE
313	CHEST PAIN

MS-DRG	TITLE
314	OTHER CIRCULATORY SYSTEM DIAGNOSES W MCC
315	OTHER CIRCULATORY SYSTEM DIAGNOSES W CC
316	OTHER CIRCULATORY SYSTEM DIAGNOSES W/O CC/MCC
368	MAJOR ESOPHAGEAL DISORDERS W MCC
369	MAJOR ESOPHAGEAL DISORDERS W CC
370	MAJOR ESOPHAGEAL DISORDERS W/O CC/MCC
371	MAJOR GASTROINTESTINAL DISORDERS & PERITONEAL INFECTIONS W MCC
372	MAJOR GASTROINTESTINAL DISORDERS & PERITONEAL INFECTIONS W CC
373	MAJOR GASTROINTESTINAL DISORDERS & PERITONEAL INFECTIONS W/O CC/MCC
374	DIGESTIVE MALIGNANCY W MCC
375	DIGESTIVE MALIGNANCY W CC
376	DIGESTIVE MALIGNANCY W/O CC/MCC
377	G.I. HEMORRHAGE W MCC
378	G.I. HEMORRHAGE W CC
379	G.I. HEMORRHAGE W/O CC/MCC
380	COMPLICATED PEPTIC ULCER W MCC
381	COMPLICATED PEPTIC ULCER W CC
382	COMPLICATED PEPTIC ULCER W/O CC/MCC
383	UNCOMPLICATED PEPTIC ULCER W MCC
384	UNCOMPLICATED PEPTIC ULCER W/O MCC
385	INFLAMMATORY BOWEL DISEASE W MCC
386	INFLAMMATORY BOWEL DISEASE W CC
387	INFLAMMATORY BOWEL DISEASE W/O CC/MCC
388	G.I. OBSTRUCTION W MCC
389	G.I. OBSTRUCTION W CC
390	G.I. OBSTRUCTION W/O CC/MCC
391	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS W MCC
392	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS W/O MCC
393	OTHER DIGESTIVE SYSTEM DIAGNOSES W MCC
394	OTHER DIGESTIVE SYSTEM DIAGNOSES W CC
395	OTHER DIGESTIVE SYSTEM DIAGNOSES W/O CC/MCC
432	CIRRHOSIS & ALCOHOLIC HEPATITIS W MCC
433	CIRRHOSIS & ALCOHOLIC HEPATITIS W CC
434	CIRRHOSIS & ALCOHOLIC HEPATITIS W/O CC/MCC
435	MALIGNANCY OF HEPATOBILIARY SYSTEM OR PANCREAS W MCC
436	MALIGNANCY OF HEPATOBILIARY SYSTEM OR PANCREAS W CC
437	MALIGNANCY OF HEPATOBILIARY SYSTEM OR PANCREAS W/O CC/MCC
438	DISORDERS OF PANCREAS EXCEPT MALIGNANCY W MCC
439	DISORDERS OF PANCREAS EXCEPT MALIGNANCY W CC
440	DISORDERS OF PANCREAS EXCEPT MALIGNANCY W/O CC/MCC
441	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W MCC
442	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W CC
443	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W/O CC/MCC
444	DISORDERS OF THE BILIARY TRACT W MCC
445	DISORDERS OF THE BILIARY TRACT W CC
446	DISORDERS OF THE BILIARY TRACT W/O CC/MCC
533	FRACTURES OF FEMUR W MCC
534	FRACTURES OF FEMUR W/O MCC
535	FRACTURES OF HIP & PELVIS W MCC
536	FRACTURES OF HIP & PELVIS W/O MCC
537	SPRAINS, STRAINS, & DISLOCATIONS OF HIP, PELVIS & THIGH W CC/MCC
538	SPRAINS, STRAINS, & DISLOCATIONS OF HIP, PELVIS & THIGH W/O CC/MCC
539	OSTEOMYELITIS W MCC
540	OSTEOMYELITIS W CC
541	OSTEOMYELITIS W/O CC/MCC
542	PATHOLOGICAL FRACTURES & MUSCULOSKELET & CONN TISS MALIG W MCC
543	PATHOLOGICAL FRACTURES & MUSCULOSKELET & CONN TISS MALIG W CC
544	PATHOLOGICAL FRACTURES & MUSCULOSKELET & CONN TISS MALIG W/O CC/MCC
545	CONNECTIVE TISSUE DISORDERS W MCC
546	CONNECTIVE TISSUE DISORDERS W CC
547	CONNECTIVE TISSUE DISORDERS W/O CC/MCC
548	SEPTIC ARTHRITIS W MCC
549	SEPTIC ARTHRITIS W CC
550	SEPTIC ARTHRITIS W/O CC/MCC
551	MEDICAL BACK PROBLEMS W MCC
552	MEDICAL BACK PROBLEMS W/O MCC
553	BONE DISEASES & ARTHROPATHIES W MCC
554	BONE DISEASES & ARTHROPATHIES W/O MCC

MS-DRG	TITLE
555	SIGNS & SYMPTOMS OF MUSCULOSKELETAL SYSTEM & CONN TISSUE W MCC
556	SIGNS & SYMPTOMS OF MUSCULOSKELETAL SYSTEM & CONN TISSUE W/O MCC
557	TENDONITIS, MYOSITIS & BURSITIS W MCC
558	TENDONITIS, MYOSITIS & BURSITIS W/O MCC
559	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W MCC
560	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W CC
561	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W/O CC/MCC
562	FX, SPRN, STRN & DISL EXCEPT FEMUR, HIP, PELVIS & THIGH W MCC
563	FX, SPRN, STRN & DISL EXCEPT FEMUR, HIP, PELVIS & THIGH W/O MCC
564	OTHER MUSCULOSKELETAL SYS & CONNECTIVE TISSUE DIAGNOSES W MCC
565	OTHER MUSCULOSKELETAL SYS & CONNECTIVE TISSUE DIAGNOSES W CC
566	OTHER MUSCULOSKELETAL SYS & CONNECTIVE TISSUE DIAGNOSES W/O CC/MCC
592	SKIN ULCERS W MCC
593	SKIN ULCERS W CC
594	SKIN ULCERS W/O CC/MCC
595	MAJOR SKIN DISORDERS W MCC
596	MAJOR SKIN DISORDERS W/O MCC
597	MALIGNANT BREAST DISORDERS W MCC
598	MALIGNANT BREAST DISORDERS W CC
599	MALIGNANT BREAST DISORDERS W/O CC/MCC
600	NON-MALIGNANT BREAST DISORDERS W CC/MCC
601	NON-MALIGNANT BREAST DISORDERS W/O CC/MCC
602	CELLULITIS W MCC
603	CELLULITIS W/O MCC
604	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST W MCC
605	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST W/O MCC
606	MINOR SKIN DISORDERS W MCC
607	MINOR SKIN DISORDERS W/O MCC
637	DIABETES W MCC
638	DIABETES W CC
639	DIABETES W/O CC/MCC
640	NUTRITIONAL & MISC METABOLIC DISORDERS W MCC
641	NUTRITIONAL & MISC METABOLIC DISORDERS W/O MCC
642	INBORN ERRORS OF METABOLISM
643	ENDOCRINE DISORDERS W MCC
644	ENDOCRINE DISORDERS W CC
645	ENDOCRINE DISORDERS W/O CC/MCC
682	RENAL FAILURE W MCC
683	RENAL FAILURE W CC
684	RENAL FAILURE W/O CC/MCC
685	ADMIT FOR RENAL DIALYSIS
686	KIDNEY & URINARY TRACT NEOPLASMS W MCC
687	KIDNEY & URINARY TRACT NEOPLASMS W CC
688	KIDNEY & URINARY TRACT NEOPLASMS W/O CC/MCC
689	KIDNEY & URINARY TRACT INFECTIONS W MCC
690	KIDNEY & URINARY TRACT INFECTIONS W/O MCC
691	URINARY STONES W ESW LITHOTRIPSY W CC/MCC
692	URINARY STONES W ESW LITHOTRIPSY W/O CC/MCC
693	URINARY STONES W/O ESW LITHOTRIPSY W MCC
694	URINARY STONES W/O ESW LITHOTRIPSY W/O MCC
695	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS W MCC
696	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS W/O MCC
697	URETHRAL STRICTURE
698	OTHER KIDNEY & URINARY TRACT DIAGNOSES W MCC
699	OTHER KIDNEY & URINARY TRACT DIAGNOSES W CC
700	OTHER KIDNEY & URINARY TRACT DIAGNOSES W/O CC/MCC
722	MALIGNANCY, MALE REPRODUCTIVE SYSTEM W MCC
723	MALIGNANCY, MALE REPRODUCTIVE SYSTEM W CC
724	MALIGNANCY, MALE REPRODUCTIVE SYSTEM W/O CC/MCC
725	BENIGN PROSTATIC HYPERTROPHY W MCC
726	BENIGN PROSTATIC HYPERTROPHY W/O MCC
727	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM W MCC
728	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM W/O MCC
729	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES W CC/MCC
730	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES W/O CC/MCC
754	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W MCC
755	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W CC
756	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W/O CC/MCC

MS-DRG	TITLE
757	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM W MCC
758	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM W CC
759	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM W/O CC/MCC
760	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS W CC/MCC
761	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS W/O CC/MCC
774	VAGINAL DELIVERY W COMPLICATING DIAGNOSES
775	VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES
776	POSTPARTUM & POST ABORTION DIAGNOSES W/O O.R. PROCEDURE
777	ECTOPIC PREGNANCY
778	THREATENED ABORTION
779	ABORTION W/O D&C
780	FALSE LABOR
781	OTHER ANTEPARTUM DIAGNOSES W MEDICAL COMPLICATIONS
782	OTHER ANTEPARTUM DIAGNOSES W/O MEDICAL COMPLICATIONS
789	NEONATES, DIED OR TRANSFERRED TO ANOTHER ACUTE CARE FACILITY
790	EXTREME IMMATURITY OR RESPIRATORY DISTRESS SYNDROME, NEONATE
791	PREMATURITY W MAJOR PROBLEMS
792	PREMATURITY W/O MAJOR PROBLEMS
793	FULL TERM NEONATE W MAJOR PROBLEMS
794	NEONATE W OTHER SIGNIFICANT PROBLEMS
795	NORMAL NEWBORN
808	MAJOR HEMATOL/IMMUN DIAG EXC SICKLE CELL CRISIS & COAGUL W MCC
809	MAJOR HEMATOL/IMMUN DIAG EXC SICKLE CELL CRISIS & COAGUL W CC
810	MAJOR HEMATOL/IMMUN DIAG EXC SICKLE CELL CRISIS & COAGUL W/O CC/MCC
811	RED BLOOD CELL DISORDERS W MCC
812	RED BLOOD CELL DISORDERS W/O MCC
813	COAGULATION DISORDERS
814	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W MCC
815	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W CC
816	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W/O CC/MCC
834	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE W MCC
835	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE W CC
836	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE W/O CC/MCC
837	CHEMO W ACUTE LEUKEMIA AS SDX OR W HIGH DOSE CHEMO AGENT W MCC
838	CHEMO W ACUTE LEUKEMIA AS SDX W CC OR HIGH DOSE CHEMO AGENT
839	CHEMO W ACUTE LEUKEMIA AS SDX W/O CC/MCC
840	LYMPHOMA & NON-ACUTE LEUKEMIA W MCC
841	LYMPHOMA & NON-ACUTE LEUKEMIA W CC
842	LYMPHOMA & NON-ACUTE LEUKEMIA W/O CC/MCC
843	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W MCC
844	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W CC
845	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W/O CC/MCC
846	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS W MCC
847	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS W CC
848	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS W/O CC/MCC
849	RADIOTHERAPY
862	POSTOPERATIVE & POST-TRAUMATIC INFECTIONS W MCC
863	POSTOPERATIVE & POST-TRAUMATIC INFECTIONS W/O MCC
864	FEVER
865	VIRAL ILLNESS W MCC
866	VIRAL ILLNESS W/O MCC
867	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES W MCC
868	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES W CC
869	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES W/O CC/MCC
870	SEPTICEMIA OR SEVERE SEPSIS W MV 96+ HOURS
871	SEPTICEMIA OR SEVERE SEPSIS W/O MV 96+ HOURS W MCC
872	SEPTICEMIA OR SEVERE SEPSIS W/O MV 96+ HOURS W/O MCC
880	ACUTE ADJUSTMENT REACTION & PSYCHOSOCIAL DYSFUNCTION
881	DEPRESSIVE NEUROSES
882	NEUROSES EXCEPT DEPRESSIVE
883	DISORDERS OF PERSONALITY & IMPULSE CONTROL
884	ORGANIC DISTURBANCES & MENTAL RETARDATION
885	PSYCHOSES
886	BEHAVIORAL & DEVELOPMENTAL DISORDERS
887	OTHER MENTAL DISORDER DIAGNOSES
894	ALCOHOL/DRUG ABUSE OR DEPENDENCE, LEFT AMA

MS-DRG	TITLE
895	ALCOHOL/DRUG ABUSE OR DEPENDENCE W REHABILITATION THERAPY
896	ALCOHOL/DRUG ABUSE OR DEPENDENCE W/O REHABILITATION THERAPY W MCC
897	ALCOHOL/DRUG ABUSE OR DEPENDENCE W/O REHABILITATION THERAPY W/O MCC
913	TRAUMATIC INJURY W MCC
914	TRAUMATIC INJURY W/O MCC
915	ALLERGIC REACTIONS W MCC
916	ALLERGIC REACTIONS W/O MCC
917	POISONING & TOXIC EFFECTS OF DRUGS W MCC
918	POISONING & TOXIC EFFECTS OF DRUGS W/O MCC
919	COMPLICATIONS OF TREATMENT W MCC
920	COMPLICATIONS OF TREATMENT W CC
921	COMPLICATIONS OF TREATMENT W/O CC/MCC
922	OTHER INJURY, POISONING & TOXIC EFFECT DIAG W MCC
923	OTHER INJURY, POISONING & TOXIC EFFECT DIAG W/O MCC
933	EXTENSIVE BURNS OR FULL THICKNESS BURNS W MV 96+ HRS W/O SKIN GRAFT
934	FULL THICKNESS BURN W/O SKIN GRFT OR INHAL INJ
935	NON-EXTENSIVE BURNS
945	REHABILITATION W CC/MCC
946	REHABILITATION W/O CC/MCC
947	SIGNS & SYMPTOMS W MCC
948	SIGNS & SYMPTOMS W/O MCC
949	AFTERCARE W CC/MCC
950	AFTERCARE W/O CC/MCC
951	OTHER FACTORS INFLUENCING HEALTH STATUS
963	OTHER MULTIPLE SIGNIFICANT TRAUMA W MCC
964	OTHER MULTIPLE SIGNIFICANT TRAUMA W CC
965	OTHER MULTIPLE SIGNIFICANT TRAUMA W/O CC/MCC
974	HIV W MAJOR RELATED CONDITION W MCC
975	HIV W MAJOR RELATED CONDITION W CC
976	HIV W MAJOR RELATED CONDITION W/O CC/MCC
977	HIV W OR W/O OTHER RELATED CONDITION

Appendix F – High-risk Immunocompromised States

ICD-9-CM High Risk Immunocompromised States diagnosis codes:

042	HUMAN IMMUNODEFICIENCY VIRUS (HIV) DISEASE
1363	PNEUMOCYSTOSIS
1992	MALIGNANT NEOPLASM ASSOCIATED WITH TRANPLANTED ORGAN OCT08-
20000	RETCLSRC UNSP XTRNDL ORG
20001	RETICULOSARCOMA HEAD
20002	RETICULOSARCOMA THORAX
20003	RETICULOSARCOMA ABDOM
20004	RETICULOSARCOMA AXILLA
20005	RETICULOSARCOMA INGUIN
20006	RETICULOSARCOMA PELVIC
20007	RETICULOSARCOMA SPLEEN
20008	RETICULOSARCOMA MULT
20010	LYMPHSRC UNSP XTRNDL ORG
20011	LYMPHOSARCOMA HEAD
20012	LYMPHOSARCOMA THORAX
20013	LYMPHOSARCOMA ABDOM
20014	LYMPHOSARCOMA AXILLA
20015	LYMPHOSARCOMA INGUIN
20016	LYMPHOSARCOMA PELVIC
20017	LYMPHOSARCOMA SPLEEN
20018	LYMPHOSARCOMA MULT
20020	BRKT TMR UNSP XTRNDL ORG
20021	BURKITTS TUMOR HEAD
20022	BURKITTS TUMOR THORAX
20023	BURKITTS TUMOR ABDOM
20024	BURKITTS TUMOR AXILLA
20025	BURKITTS TUMOR INGUIN
20026	BURKITTS TUMOR PELVIC
20027	BURKITTS TUMOR SPLEEN
20028	BURKITTS TUMOR MULT
20080	OTH VARN UNSP XTRNDL ORG
20081	MIXED LYMPHOSARC HEAD
20082	MIXED LYMPHOSARC THORAX
20083	MIXED LYMPHOSARC ABDOM
20084	MIXED LYMPHOSARC AXILLA
20085	MIXED LYMPHOSARC INGUIN
20086	MIXED LYMPHOSARC PELVIC
20087	MIXED LYMPHOSARC SPLEEN
20088	MIXED LYMPHOSARC MULT
20302	MULT MYELOMA IN RELAPSE OCT08-
20312	PLSM CEL LEUK IN RELAPSE OCT08-
20382	OTH IMNPRLF NEO-RELAPSE OCT08-
20402	ACT LYMP LEUK IN RELAPSE OCT08-
20412	CHR LYMP LEUK IN RELAPSE OCT08-
20422	SBAC LYM LEUK IN RELAPSE OCT08-
20482	OTH LYM LEUK IN RELAPSE OCT08-
20492	LYMP LEUK NOS RELAPSE OCT08-
2050	ACUTE MYELOID LEUKEMIA
20500	ACT MYL LEUK W/O RMSION
20502	ACT MYEL LEUK IN RELAPSE OCT08-
20501	ACT MYL LEUK W RMSION
2051	CHRONIC MYELOID LEUKEMIA
20510	CHR MYL LEUK W/O RMSION
20511	CHR MYL LEUK W RMSION
20512	CHR MYEL LEUK IN RELAPSE OCT08-
2052	SUBACUT MYELOID LEUKEMIA
20520	SBAC MYL LEUK W/O RMSION
20521	SBAC MYL LEUK W RMSION
20522	SBAC MYL LEUK IN RELAPSE OCT08-
2053	MYELOID SARCOMA
20530	MYL SRCOMA W/O RMSION
20531	MYL SRCOMA W RMSION
20532	MYEL SARCOMA IN RELAPSE OCT08-
2058	MYELOID LEUKEMIA NEC
20580	OTH MYL LEUK W/O RMSION
20581	OTH MYL LEUK W RMSION
20582	OTH MYEL LEUK IN RELAPSE OCT08-
2059	MYELOID LEUKEMIA NOS
20590	UNS MYL LEUK W/O RMSION
20591	UNS MYL LEUK W RMSION
20592	MYEL LEUK NOS IN RELAPSE OCT08-
2060	ACUTE MONOCYTIC LEUKEMIA
20600	ACT MONO LEUK W/O RMSION
20601	ACT MONO LEUK W RMSION
20602	ACT MONO LEUK IN RELAPSE OCT08-
2061	CHR MONOCYTIC LEUKEMIA
20610	CHR MONO LEUK W/O RMSION
20611	CHR MONO LEUK W RMSION
20612	CHR MONO LEUK IN RELAPSE OCT08-
2062	SUBAC MONOCYTIC LEUKEMIA
20620	SBAC MONO LEUK W/O RMSON
20621	SBAC MONO LEUK W RMSION
20622	SBAC MONO LEU IN RELAPSE OCT08-
2068	MONOCYTIC LEUKEMIA NEC
20680	OTH MONO LEUK W/O RMSION
20681	OTH MONO LEUK W RMSION
20682	OTH MONO LEUK IN RELAPSE OCT08-
2069	MONOCYTIC LEUKEMIA NOS
20690	UNS MONO LEUK W/O RMSION
20691	UNS MONO LEUK W RMSION
20692	MONO LEUK NOS RELAPSE OCT08-
2070	ACUTE ERYTHREMIA
20700	ACT ERTH/ERYLK W/O RMSON
20701	ACT ERTH/ERYLK W RMSON
20702	AC ERTH/ERYLK IN RELAPSE OCT08-
2071	CHRONIC ERYTHREMIA
20710	CHR ERYTHRM W/O REMISION
20711	CHR ERYTHRM W REMISION
20712	CHR ERYTHRMIA IN RELAPSE OCT08-
2072	MEGAKARYOCYTIC LEUKEMIA
20720	MGKRYCYT LEUK W/O RMSION
20721	MGKRYCYT LEUK W RMSION
20722	MGKRYCYT LEUK IN RELAPSE OCT08-
2078	SPECIFIED LEUKEMIA NEC
20780	OTH SPF LEUK W/O REMSION
20781	OTH SPF LEUK W REMSION
20782	OTH SPF LEUK IN RELAPSE OCT08-
2080	ACT LEUK UNS CL W/O RMSN
20800	ACT LEUK UNS CL W/O RMSN
20801	ACT LEUK UNS CL W RMSON
20802	AC LEUK UNS CL RELAPSE OCT08-
2081	CHRONIC LEUKEMIA NOS

20810	CHR LEUK UNS CL W/O RMSN
20811	CHR LEUK UNS CL W RMSON
20812	CH LEU UNS CL IN RELAPSE OCT08-
2082	SUBACUTE LEUKEMIA NOS
20820	SBAC LEUK UNS CL W/O RMS
20821	SBAC LEUK UNS CL W RMSON
20822	SBAC LEU UNS CL-RELAPSE OCT08-
2088	LEUKEMIA-UNSPEC CELL NEC
20880	OTH LEUK UNS CL W/O RMSN
20881	OTH LEUK UNS CL W RMSON
20882	OTH LEUK UNS CL-RELAPSE OCT08-
2089	LEUKEMIA-UNSPEC CELL NOS
20890	LEUKEMIA NOS W/O REMSION
20891	LEUKEMIA NOS W REMISSIO
20892	LEUKEMIA NOS IN RELAPSE OCT08-
23873	HI GRDE MYELODYS SYN LES OCT06-
23876	MYELOFI W MYELO METAPLAS OCT06-
23877	POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDER OCT08-
23879	OTHER LYMPHATIC AND HEMATOPOIETIC TISSUES OCT08-
260	KWASHIORKOR
261	NUTRITIONAL MARASMUS
262	OTHER SEVERE PROTEIN CALORIE MALNUTRITION
27900	HYPOGAMMAGLOBULINEMIA NOS
27901	SELECTIVE IGA IMMUNODEFICIENCY
27902	SELECTIVE IGM IMMUNODEFICIENCY
27903	OTHER SELECTIVE IMMUNOGLOBULIN DEFICIENCIES
27904	CONGENITAL HYPOGAMMAGLOBULINEMIA
27905	IMMUNODEFICIENCY WITH INCREASED IGM
27906	COMMON VARIABLE IMMUNODEFICIENCY
27909	DEFICIENCY OF HUMORAL IMMUNITY, OTHER
27910	IMMUNODEFICIENCY WITH PREDOMINANT T-CELL DEFECT NOS
27911	DIGEORGE'S SYNDROME
27912	WISKOTT-ALDRICH SYNDROME
27913	NEZLOF'S SYNDROME
27919	DEFICIENCY OF CELL-MEDIATED IMMUNITY, OTHER
2792	COMBINED IMMUNITY DEFICIENCY
2793	UNSPECIFIED IMMUNITY DEFICIENCY
2794	AUTOIMMUNE DISEASE, NOT ELSEWHERE CLASSIFIED
27941	AUTOIMMUNE LYMPHOPROLIFERATIVE SYNDROME ALPS OCT09
27949	AUTOIMMUNE DISEASE, NOT ELSEWHERE CLASSIFIED OCT09
27950	GRAFT-VERSUS-HOST DISEASE, UNSPECIFIED OCT08-
27951	ACUTE GRAFT-VERSUS-HOST DISEASE OCT08-
27952	CHRONIC GRAFT-VERSUS-HOST DISEASE OCT08-
27953	ACUTE ON CHRONIC GRAFT-VERSUS-HOST DISEASE OCT08-
2798	OTHER SPECIFIED DISORDERS INVOLVING THE IMMUNE MECHANISM
2799	UNDSPECIFIED DISORDER OF IMMUNE MECHANISM
28409	CONST APLASTC ANEMIA NEC OCT06-
2841	PANCYTOPENIA OCT06-
2880	AGRANULOCYTOSIS
28800	NEUTROPENIA NOS OCT06-
28801	CONGENITAL NEUTROPENIA OCT06-
28802	CYCLIC NEUTROPENIA OCT06-
28803	DRUG INDUCED NEUTROPENIA OCT06-
28809	NEUTROPENIA NEC OCT06-
2881	FUNCTIONAL DISORDERS OF POLYMORPHONUCLEAR NEUTROPHILS
2882	GENETIC ANOMALIES OF LUKOCYTES
2884	HEMOPHAGOCYTIC SYNDROMES OCT06-
28850	LEUKOCYTOPENIA NOS OCT06-
28851	LYMPHOCYTOPENIA OCT06-
28859	DECREASED WBC COUNT NEC OCT06-
28953	NEUTROPENIC SPLENOMEGALY OCT06-
28983	MYELOFIBROSIS OCT06-
40301	HYPERTENSIVE RENAL DISEASE, MALIGNANT W RENAL FAILURE
40311	HYPERTENSIVE RENAL DISEASE, BENIGH W RENAL FAILURE
40391	HYPERTENSIVE RENAL DISEASE, NOS W RENAL FAILURE
40402	HYPERTENSIVE HEART AND RENAL DISEASE MALIGNANT W RENAL FAILURE
40403	HYPERTENSIVE HEART AND RENAL DISEASE MALIGNANT W CONGESTIVE HEART AND RENAL FAILURE
40412	HYPERTENSIVE HEART AND RENAL DISEASE BENIGH W RENAL FAILURE
40413	HYPERTENSIVE HEART AND RENAL DISEASE BENIGH W CONGESTIVE HEART AND RENAL FAILURE
40492	HYPERTENSIVE HEART AND RENAL DISEASE NOS W RENAL FAILURE
40493	HYPERTENSIVE HEART AND RENAL DISEASE NOS W CONGESTIVE HEART AND RENAL FAILURE
5793	OTHER AND UNSPECIFIED POSTSURGICAL NONABSORPTION
585	CHRONIC KIDNEY DISEASE
5855	CHRONIC KIDNEY DISEASE STAGE V
5856	END STAGE RENAL DISEASE
9968	COMPLICATIONS OF TRANSPLANTED ORGAN
99680	COMP ORGAN TRANSPLNT NOS
99681	COMPL KIDNEY TRANSPLANT
99682	COMPL LIVER TRANSPLANT
99683	COMPL HEART TRANSPLANT
99684	COMPL LUNG TRANSPLANT
99685	COMPL MARROW TRANSPLANT
99686	COMPL PANCREAS TRANSPLNT
99687	COMP INTESTINE TRANSPLNT
99689	COMP OTH ORGAN TRANSPLNT
V420	KIDNEY REPLACED BY TRANSPLANT
V421	HEART REPLACED BY TRANSPLANT
V426	LUNG REPLACED BY TRANSPLANT
V427	LIVER REPLACED BY TRANSPLANT

V428	OTHER SPECIFIED ORGAN OR TISSUE
V4281	BONE MARROW SPECIFIED BY TRANSPLANT
V4282	PERIPHERAL STEM CELLS REPLACED BY TRANSPLANT
V4283	PANCREAS REPLACED BY TRANSPLANT
V4284	INTESTINES REPLACE BY TRANSPLANT
V4289	OTHER REPLACED BY TRANSPLANT
V451	RENAL DIALYSIS STATUS
V4511	RENAL DIALYSIS STATUS OCT08-
V560	EXTRACORPOREAL DIALYSIS
V561	FITTING AND ADJUSTMENT OF EXTRACORPOREAL DIALYSIS CATHETER
V562	FITTING AND ADJUSTMENT OF PERITONEAL DIALYSIS CATHETER
V563	ENCOUNTER FOR ADEQUACY TESTING FOR DIALYSIS
V5631	ENCOUNTER FOR ADEQUACY TESTING FOR HEMODIALYSIS
V5632	ENCOUNTER FOR ADEQUACY TESTING FOR PERIONEAL DIALYSIS
V568	OTHER DIALYSIS

ICD-9-CM High-Risk Immunocompromised States procedure codes:

335	LUNG TRANSPLANT
3350	LUNG TRANSPLANT NOS
3351	UNILAT LUNG TRANSPLANT
3352	BILAT LUNG TRANSPLANT
336	COMBINED HEART-LUNG TRANSPLANTATION
375	HEART TRANSPLANTATION
3751	HEART TRANSPLANTATION
410	OPERATIONS ON BONE MAROW AND SPLEEN
4100	BONE MARROW TRNSPLNT NOS
4101	AUTO BONE MT W/O PURG
4102	ALO BONE MARROW TRNSPLNT
4103	ALLOGRFT BONE MARROW NOS
4104	AUTO HEM STEM CT W/O PUR
4105	ALLO HEM STEM CT W/O PUR
4106	CORD BLD STEM CELL TRANS
4107	AUTO HEM STEM CT W PURG
4108	ALLO HEM STEM CT W PURG
4109	AUTO BONE MT W PURGING
5051	AUXILIARY LIVER TRANSPL
5059	LIVER TRANSPLANT NEC
5280	PANCREATIC TRANSPLANT, NOS
5281	REIMPLANTATION OF PANCREATIC TISSUE
5282	REIMPLANTATION OF PANCREATIC TISSUE
5283	HETEROTRANSPLANT OF PANCREAS
5285	ALLOTRANSPLANTATION OF CELLS OF ISLETS OF LNGERHANS
5286	TRANSPLANTATION OF CELLS OF ISLETS OF LANGERHANS, NOS
5569	OTHER KIDNEY TRANSPLANTATION

Appendix G – Intermediate-risk Immunocompromised States

ICD-9-CM Intermediate Risk Immunocompromised States diagnosis codes:

07022	VIRAL HEPATITIS B W HEPATIC COMA, CHRONIC WO MENTION OF HEPATITIS DELTA
07023	VIRAL HEPATITIS B W HEPACTIC COMA, CHRONIC W HEPATITIS DELTA
07044	CHRONIC HEPATITIS C WITH HEPACTIC COMMA
2894	HYPERSPLENISM
28950	DISEASE OF SPLEEN NOS
28951	CHRONIC DIGESTIVE SPLENOMEGALY
28952	SPLENIC SEQUESTRATION
28959	OTHER DISEASE OF SPLEEN, OTHER
4560	ESOPHAGEAL VARICES W BLEEDING
4561	ESOPHAGEAL VARICES WO MENTION OF BLEEDING
45620	ESOPHAGEAL VARICES IN DISEASE CLASSIFIED ELSEWHERE, W BLEEDING
45621	ESOPHAGEAL VARICES IN DISEASE CLASSIFIED ELSEWHERE, WO MENTION OF BLEEDING
5723	PORTAL HYPERTENSION
5728	OTHER SEQUELAE OF CHRONIC LIVER DISEASE
580	ACUTE GLOMERULONEPHRITIS
5800	WITH LESION OF PROLIFERATIVE GLOMERULONEPHRITIS
5804	WITH LESION OF RAPIDLY PROGRESSIVE GLOMERULONEPHRITIS
5808	WITH OTHER SPECIFIED PATHOLOGICAL LESION IN KIDNEY
58081	ACUTE GLOMERULONEPHRITIS IN DISEASES CLASSIFIED ELSEWHERE
58089	WITH OTHER SPECIFIED PATHOLOGICAL LESION IN KIDNEY, OTHER
5809	ACUTE GLOMERULONEPHRITIS WITH UNSPECIFIED PATHOLOGICAL LESION IN KIDNEY
581	NEPHROTIC SYNDROME
5810	WITH LESION OF PROLIFERATIVE GLOMERULONEPHRITIS
5811	WITH LESION OF MEMBRANOUS GLOMERULONEPHRITIS
5812	WITH LESION OF MEMBRANOPROLIFERATIVE GLOMERULONEPHRITIS
5813	WITH LESION OF MINIMAL CHANGE GLOMERULONEPHRITIS
5818	WITH OTHER SPECIFIED PATHOLOGICAL LESION IN KIDNEY
58181	NEPHROTIC SYNDROME IN DISEASE CLASSIFIED ELSEWHERE
58189	WITH OTHER SPECIFIED PATHOLOGICAL LESION IN KIDNEY,OTHER
5819	NEPHROTIC SYNDROME WITH UNSPECIFIED PATHOLOGICAL LESION IN KIDNEY
582	CHRONIC GLOMERULONEPHRITIS
5820	WITH LESION OF PROLIFERATIVE GLOMERULONEPHRITIS
5821	WITH LESION OF MEMBRANOUS GLOMERULONEPHRITIS
5822	WITH LESION OF MEMBRANEPROLIFERATIVE GLOMERULONEPHRITIS
5824	WITH LESION OF RAPIDLY PROGRESSIVE GLOMERULONEPHRITIS
5828	WITH OTHER SPECIFIED PATHOLOGICAL LESION IN KIDNEY
58281	CHRONIC GLOMERULONEPHRITIS IN DISEASES CLASSIFIED ELSEWHERE
58289	WITH OTHER SPECIFIED PATHOLOGICAL LESION IN KIDNEY, OTHER
5829	CHORNIC GLOMERULONEPHRITIS WITH UNSPECIFIED PATHOLOGICAL LESION IN KIDNEY
583	NEPHRITIS AND NEPHROPATHY, NOT SPECFIED AS ACUTE OR CHRONIC
5830	WITH LESION OF PROLIFERATIVE GLOMERULONEPHRITIS
5831	WITH LESION OF MEMBRANOUS GLOMERULONEPHRITIS
5832	WITH LESION OF MEMBRANEPROLIFERATIVE GLOMERULONEPHRITIS
5834	WITH LESION OF RAPIDLY PROGRESSIVE GLOMERULONEPHRITIS
5836	WITH LESION OF RENAL CORTICAL NECROSIS
5837	WITH LESION OF RENAL MEDULLARY NECROSIS
5838	WITH OTHER SPECIFIED PATHOLOGICAL LESION IN KIDNEY
58381	NEPHRITIS AND NEPHROPATHY, NOT SPECIFIED AS ACUTE OR CHRONIC, IN DISEASE CLASSIFIED ELSEWHERE
58389	WITH OTHER SPECIFIED PATHOLOGICAL LESION IN KIDNEY, OTHER
5839	WITH UNSPECIFIED PATHOLOGICAL LESION IN KIDNEY
7100	SYSTEMIC LUPUS ERYTHEMATOSUS
7101	SYSTEMIC SCLEROSIS
7102	SICCA SYNDROME
7103	DERMATOMYOSITIS

7104	POLYMYOSITIS
7105	EOSINOPHILIA MYALGIA SYNDROME
7108	OTHER SPECIFIED DIFFUSE DISEASE OF CONNECTIVE TISSUE
7109	UNSPECIFIED DIFFUSE CONNECTIVE TISSUE DISEASE
7590	ANOMALIES OF SPLEEN
7994	CACHEXIA
86500	INJURY TO SPLEEN,WO MENTION OF OPEN WOUND INTO CAVITY NOS INJURY
86501	INJURY TO SPLEEN,WO MENTION OF OPEN WOUND INTO CAVITY HEMATOMA WO RUPTURE OF CAPSULE
86502	INJURY TO SPLEEN,WO MENTION OF OPEN WOUND INTO CAVITY CAPSULE TEARS WO MAJOR DISRUPTION OF PARENCHYMA
86503	INJURY TO SPLEEN,WO MENTION OF OPEN WOUND INTO CAVITY LACERATION EXTENDING INTO PARENCHYMA
86504	INJURY TO SPLEEN,WO MENTION OF OPEN WOUND INTO CAVITY MASSIVE PARENCHYMAL DISRUPTION
86509	INJURY TO SPLEEN,WO MENTION OF OPEN WOUND INTO CAVITY OTHER
86510	INJURY TO SPLEEN,W OPEN WOUND INTO CAVITY NOS INJURY
86511	INJURY TO SPLEEN,W OPEN WOUND INTO CAVITY HEMATOMA WO RUPTURE OF CAPSULE
86512	INJURY TO SPLEEN,W OPEN WOUND INTO CAVITY CAPSULAR TEARS WO MAJOR DISRUPTION OF PARENCHYMA
86513	INJURY TO SPLEEN,W OPEN WOUND INTO CAVITY LACERATION EXTENDING INTO PARENCHYMA
86514	INJURY TO SPLEEN,W OPEN WOUND INTO CAVITY MASSIVE PARENCHYMAL DISRUPTION
86519	INJURY TO SPLEEN,W OPEN WOUND INTO CAVITY OTHER
V427	ORGAN OR TISSUE REPLACED BY TRANSPLANT, LIVER

Appendix H – Infection Diagnosis Codes

ICD-9-CM Infection diagnosis codes

0010	CHOLERA D/T VIB CHOLERAE OCT05-
0011	CHOLERA D/T VIB EL TOR OCT05-
0019	CHOLERA NOS OCT05-
0020	TYPHOID FEVER OCT05-
0021	PARATYPHOID FEVER A OCT05-
0022	PARATYPHOID FEVER B OCT05-
0023	PARATYPHOID FEVER C OCT05-
0029	PARATYPHOID FEVER NOS OCT05-
0030	SALMONELLA ENTERITIS OCT05-
0031	SALMONELLA SEPTICEMIA OCT05-
00320	LOCAL SALMONELLA INF NOS OCT05-
00321	SALMONELLA MENINGITIS OCT05-
00322	SALMONELLA PNEUMONIA OCT05-
00323	SALMONELLA ARTHRITIS OCT05-
00324	SALMONELLA OSTEOMYELITIS OCT05-
00329	LOCAL SALMONELLA INF NEC OCT05-
0038	SALMONELLA INFECTION NEC OCT05-
0039	SALMONELLA INFECTION NOS OCT05-
0040	SHIGELLA DYSENTERIAE OCT05-
0041	SHIGELLA FLEXNERI OCT05-
0042	SHIGELLA BOYDII OCT05-
0043	SHIGELLA SONNEI OCT05-
0048	SHIGELLA INFECTION NEC OCT05-
0049	SHIGELLOSIS NOS OCT05-
0050	STAPH FOOD POISONING OCT05-
0051	BOTULISM OCT05-
0052	FOOD POIS D/T C. PERFRIN OCT05-
0053	FOOD POIS: CLOSTRID NEC OCT05-
0054	FOOD POIS: V. PARAHAEM OCT05-
00581	FOOD POISN D/T V. VULNIF OCT05-
00589	BACT FOOD POISONING NEC OCT05-
0059	FOOD POISONING NOS OCT05-
00800	INTEST INFEC E COLI NOS OCT05-
00801	INT INF E COLI ENTRPATH OCT05-
00802	INT INF E COLI ENTRTOXGN OCT05-
00803	INT INF E COLI ENTRNVSV OCT05-
00804	INT INF E COLI ENTRHMRG OCT05-
00809	INT INF E COLI SPCF NEC OCT05-
0081	ARIZONA ENTERITIS OCT05-
0082	AEROBACTER ENTERITIS OCT05-
0083	PROTEUS ENTERITIS OCT05-
00841	STAPHYLOCOCC ENTERITIS OCT05-
00842	PSEUDOMONAS ENTERITIS OCT05-
00843	INT INFEC CAMPYLOBACTER OCT05-
00844	INT INF YRSNIA ENTRCLTCA OCT05-
00845	INT INF CLSTRDIUM DFCILE OCT05-
00846	INTES INFEC OTH ANEROBES OCT05-
00847	INT INF OTH GRM NEG BCTR OCT05-
00849	BACTERIAL ENTERITIS NEC OCT05-
0085	BACTERIAL ENTERITIS NOS OCT05-
0200	BUBONIC PLAGUE OCT05-
0201	CELLULOCUTANEOUS PLAGUE OCT05-
0202	SEPTICEMIC PLAGUE OCT05-
0203	PRIMARY PNEUMONIC PLAGUE OCT05-
0204	SECONDARY PNEUMON PLAGUE OCT05-
0205	PNEUMONIC PLAGUE NOS OCT05-
0208	OTHER TYPES OF PLAGUE OCT05-
0209	PLAGUE NOS OCT05-
0210	ULCEROGLANDUL TULAREMIA OCT05-
0211	ENTERIC TULAREMIA OCT05-
0212	PULMONARY TULAREMIA OCT05-
0213	OCULOGLANDULAR TULAREMIA OCT05-
0218	TULAREMIA NEC OCT05-
0219	TULAREMIA NOS OCT05-
0220	CUTANEOUS ANTHRAX OCT05-
0221	PULMONARY ANTHRAX OCT05-
0222	GASTROINTESTINAL ANTHRAX OCT05-
0223	ANTHRAX SEPTICEMIA OCT05-
0228	OTHER ANTHRAX MANIFEST OCT05-
0229	ANTHRAX NOS OCT05-
0230	BRUCELLA MELITENSIS OCT05-
0231	BRUCELLA ABORTUS OCT05-
0232	BRUCELLA SUIS OCT05-
0233	BRUCELLA CANIS OCT05-
0238	BRUCELLOSIS NEC OCT05-
0239	BRUCELLOSIS NOS OCT05-
024	GLANDERS OCT05-
025	MELIOIDOSIS OCT05-
0260	SPIRILLARY FEVER OCT05-
0261	STREPTOBACILLARY FEVER OCT05-
0269	RAT-BITE FEVER NOS OCT05-
0270	LISTERIOSIS OCT05-
0271	ERYSIPELOTHRIX INFECTION OCT05-
0272	PASTEURELLOSIS OCT05-
0278	ZOONOTIC BACT DIS NEC OCT05-
0279	ZOONOTIC BACT DIS NOS OCT05-
0320	FAUCIAL DIPHTHERIA OCT05-
0321	NASOPHARYNX DIPHTHERIA OCT05-
0322	ANT NASAL DIPHTHERIA OCT05-
0323	LARYNGEAL DIPHTHERIA OCT05-
03281	CONJUNCTIVAL DIPHTHERIA OCT05-
03282	DIPHTHERITIC MYOCARDITIS OCT05-
03283	DIPHTHERITIC PERITONITIS OCT05-
03284	DIPHTHERITIC CYSTITIS OCT05-
03285	CUTANEOUS DIPHTHERIA OCT05-
03289	DIPHTHERIA NEC OCT05-
0329	DIPHTHERIA NOS OCT05-
0330	BORDETELLA PERTUSSIS OCT05-
0331	BORDETELLA PARAPERTUSSIS OCT05-
0338	WHOOPING COUGH NEC OCT05-
0339	WHOOPING COUGH NOS OCT05-
0340	STREP SORE THROAT OCT05-
0341	SCARLET FEVER OCT05-
035	ERYSIPELAS OCT05-
0360	MENINGOCOCCAL MENINGITIS OCT05-
0361	MENINGOCOCC ENCEPHALITIS OCT05-
0362	MENINGOCOCCEMIA OCT05-
0363	MENINGOCOCC ADRENAL SYND OCT05-
03640	MENINGOCOCC CARDITIS NOS OCT05-
03641	MENINGOCOCC PERICARDITIS OCT05-
03642	MENINGOCOCC ENDOCARDITIS OCT05-
03643	MENINGOCOCC MYOCARDITIS OCT05-
03681	MENINGOCOCC OPTIC NEURIT OCT05-
03682	MENINGOCOCC ARTHROPATHY OCT05-

03689	MENINGOCOCCAL INFECT NEC OCT05-
0369	MENINGOCOCCAL INFECT NOS OCT05-
037	TETANUS OCT05-
0380	STREPTOCOCCAL SEPTICEMIA OCT05-
03810	STAPHYLCOCC SEPTICEM NOS OCT05-
03811	METHICILLIN SUSCEPTIBLE STAPHYLOCOCCUS AUREUS SEPTICEMIA OCT08-
03812	METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS SEPTICEMIA OCT08-
03819	STAPHYLCOCC SEPTICEM NEC OCT05-
0382	PNEUMOCOCCAL SEPTICEMIA OCT05-
0383	ANAEROBIC SEPTICEMIA OCT05-
03840	GRAM-NEG SEPTICEMIA NOS OCT05-
03841	H. INFLUENAE SEPTICEMIA OCT05-
03842	E COLI SEPTICEMIA OCT05-
03843	PSEUDOMONAS SEPTICEMIA OCT05-
03844	SERRATIA SEPTICEMIA OCT05-
03849	GRAM-NEG SEPTICEMIA NEC OCT05-
0388	SEPTICEMIA NEC OCT05-
0389	SEPTICEMIA NOS OCT05-
0390	CUTANEOUS ACTINOMYCOSIS OCT05-
0391	PULMONARY ACTINOMYCOSIS OCT05-
0392	ABDOMINAL ACTINOMYCOSIS OCT05-
0393	CERVICOFAC ACTINOMYCOSIS OCT05-
0394	MADURA FOOT OCT05-
0398	ACTINOMYCOSIS NEC OCT05-
0399	ACTINOMYCOSIS NOS OCT05-
0400	GAS GANGRENE OCT05-
0401	RHINOSCLEROMA OCT05-
0402	WHIPPLE'S DISEASE OCT05-
0403	NECROBACILLOSIS OCT05-
04041	INFANT BOTULISM
04042	WOUND BOTULISM
04081	TROPICAL PYOMYOSITIS OCT05-
04082	TOXIC SHOCK SYNDROME OCT05-
04089	BACTERIAL DISEASES NEC OCT05-
04100	STREPTOCOCCUS UNSPECF OCT05-
04101	STREPTOCOCCUS GROUP A OCT05-
04102	STREPTOCOCCUS GROUP B OCT05-
04103	STREPTOCOCCUS GROUP C OCT05-
04104	ENTEROCOCCUS GROUP D OCT05-
04105	STREPTOCOCCUS GROUP G OCT05-
04109	OTHER STREPTOCOCCUS OCT05-
04110	STAPHYLOCOCCUS UNSPCFIED OCT05-
04111	METHICILLIN SUSCEPTIBLE STAPHYLOCOCCUS AUREUS OCT08-
04112	METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) OCT08-
04119	OTHER STAPHYLOCOCCUS OCT05-
0412	PNEUMOCOCCUS INFECT NOS OCT05-
0413	KLEBSIELLA INFECT NOS OCT05-
0414	E. COLI INFECT NOS OCT05-
0415	H. INFLUENZAE INFECT NOS OCT05-
0416	PROTEUS INFECTION NOS OCT05-
0417	PSEUDOMONAS INFECT NOS OCT05-
04182	BACTEROIDES FRAGILIS OCT05-
04183	CLOSTRIDIUM PERFRINGENS OCT05-
04184	OTHER ANAEROBES OCT05-
04185	OTH GRAM NEGATV BACTERIA OCT05-
04186	HELICOBACTER PYLORI OCT05-
04189	OTH SPECF BACTERIA OCT05-
0419	BACTERIAL INFECTION NOS OCT05-
0783	CAT SCRATCH DISEASE
0980	ACUTE GC INFECT LOWER GU OCT05-
09810	GC (ACUTE) UPPER GU NOS OCT05-
09811	GC CYSTITIS (ACUTE) OCT05-
09812	GC PROSTATITIS (ACUTE) OCT05-
09813	GC ORCHITIS (ACUTE) OCT05-
09814	GC SEM VESICULIT (ACUTE) OCT05-
09815	GC CERVICITIS (ACUTE) OCT05-
09816	GC ENDOMETRITIS (ACUTE) OCT05-
09817	ACUTE GC SALPINGITIS OCT05-
09819	GC (ACUTE) UPPER GU NEC OCT05-
0982	CHR GC INFECT LOWER GU OCT05-
09830	CHR GC UPPER GU NOS OCT05-
09831	GC CYSTITIS, CHRONIC OCT05-
09832	GC PROSTATITIS, CHRONIC OCT05-
09833	GC ORCHITIS, CHRONIC OCT05-
09834	GC SEM VESICULITIS, CHR OCT05-
09835	GC CERVICITIS, CHRONIC OCT05-
09836	GC ENDOMETRITIS, CHRONIC OCT05-
09837	GC SALPINGITIS (CHRONIC) OCT05-
09839	CHR GC UPPER GU NEC OCT05-
09840	GONOCOCCAL CONJUNCTIVIT OCT05-
09841	GONOCOCCAL IRIDOCYCLITIS OCT05-
09842	GONOCOCCAL ENDOPHTHALMIA OCT05-
09843	GONOCOCCAL KERATITIS OCT05-
09849	GONOCOCCAL EYE NEC OCT05-
09850	GONOCOCCAL ARTHRITIS OCT05-
09851	GONOCOCCAL SYNOVITIS OCT05-
09852	GONOCOCCAL BURSITIS OCT05-
09853	GONOCOCCAL SPONDYLITIS OCT05-
09859	GC INFECT JOINT NEC OCT05-
0986	GONOCOCCAL INFEC PHARYNX OCT05-
0987	GC INFECT ANUS & RECTUM OCT05-
09881	GONOCOCCAL KERATOSIS OCT05-
09882	GONOCOCCAL MENINGITIS OCT05-
09883	GONOCOCCAL PERICARDITIS OCT05-
09884	GONOCOCCAL ENDOCARDITIS OCT05-
09885	GONOCOCCAL HEART DIS NEC OCT05-
09886	GONOCOCCAL PERITONITIS OCT05-
09889	GONOCOCCAL INF SITE NEC OCT05-
3200	HEMOPHILUS MENINGITIS OCT05-
3201	PNEUMOCOCCAL MENINGITIS OCT05-
3202	STREPTOCOCCAL MENINGITIS OCT05-
3203	STAPHYLOCOCC MENINGITIS OCT05-
3207	MENING IN OTH BACT DIS OCT05-
32081	ANAEROBIC MENINGITIS OCT05-
32082	MNINGTS GRAM-NEG BCT NEC OCT05-
32089	MENINGITIS OTH SPCF BACT OCT05-
3209	BACTERIAL MENINGITIS NOS OCT05-
3229	MENINGITIS NOS OCT05-
3240	INTRACRANIAL ABSCESS OCT05-
3241	INTRASPINAL ABSCESS OCT05-
3249	CNS ABSCESS NOS OCT05-
36000	PURULENT ENDOPHTHALM NOS OCT05-
36001	ACUTE ENDOPHTHALMITIS OCT05-
36002	PANOPHTHALMITIS OCT05-
36004	VITREOUS ABSCESS OCT05-
37055	CORNEAL ABSCESS OCT05-
37200	ACUTE CONJUNCTIVITIS NOS OCT05-
37203	MUCOPUR CONJUNCTIVIT NEC OCT05-

37204	PSEUDOMEMB CONJUNCTIVIT OCT05-
37220	BLEPHAROCONJUNCTIVIT NOS OCT05-
37221	ANGULAR BLEPHAROCONJUNCT OCT05-
37230	CONJUNCTIVITIS NOS OCT05-
37300	BLEPHARITIS NOS OCT05-
37301	ULCERATIVE BLEPHARITIS OCT05-
37311	HORDEOLUM EXTERNUM OCT05-
37312	HORDEOLUM INTERNUM OCT05-
37313	ABSCESS OF EYELID OCT05-
37500	DACRYOADENITIS NOS OCT05-
37501	ACUTE DACRYOADENITIS OCT05-
37530	DACRYOCYSTITIS NOS OCT05-
37531	ACUTE CANALICULITIS OCT05-
37532	ACUTE DACRYOCYSTITIS OCT05-
37601	ORBITAL CELLULITIS OCT05-
37602	ORBITAL PERIOSTITIS OCT05-
37603	ORBITAL OSTEOMYELITIS OCT05-
37604	TENONITIS OCT05-
38010	INFEC OTITIS EXTERNA NOS OCT05-
38011	ACUTE INFECTION OF PINNA OCT05-
38012	ACUTE SWIMMERS' EAR OCT05-
38013	AC INFECT EXTERN EAR NEC OCT05-
38014	MALIGNANT OTITIS EXTERNA OCT05-
38150	EUSTACHIAN SALPING NOS OCT05-
38151	AC EUSTACHIAN SALPING OCT05-
38200	AC SUPP OTITIS MEDIA NOS OCT05-
38201	AC SUPP OM W DRUM RUPT OCT05-
38202	AC SUPP OM IN OTH DIS OCT05-
3821	CHR TUBOTYMP SUPP OTITIS MEDIA OCT05-
3822	CHR ATTICOANTRAL SUPP OTITIS MEDIA OCT05-
3823	CHR SUPP OTITIS MEDIA NOS OCT05-
3824	SUPPUR OTITIS MEDIA NOS OCT05-
3829	OTITIS MEDIA NOS OCT05-
38300	AC MASTOIDITIS W/O COMPL OCT05-
38301	SUBPERI MASTOID ABSCESS OCT05-
38302	AC MASTOIDITIS-COMPL NEC OCT05-
38320	PETROSITIS NOS OCT05-
38321	ACUTE PETROSITIS OCT05-
38400	ACUTE MYRINGITIS NOS OCT05-
38633	SUPPURATIV LABYRINTHITIS OCT05-
4200	AC PERICARDIT IN OTH DIS OCT05-
42090	ACUTE PERICARDITIS NOS OCT05-
42099	ACUTE PERICARDITIS NEC OCT05-
4210	AC/SUBAC BACT ENDOCARD OCT05-
4211	AC/SUBAC INFECT ENDOCARD OCT05-
4219	AC/SUBAC ENDOCARDIT NOS OCT05-
42292	SEPTIC MYOCARDITIS OCT05-
4610	AC MAXILLARY SINUSITIS OCT05-
4611	AC FRONTAL SINUSITIS OCT05-
4612	AC ETHMOIDAL SINUSITIS OCT05-
4613	AC SPHENOIDAL SINUSITIS OCT05-
4618	OTHER ACUTE SINUSITIS OCT05-
4619	ACUTE SINUSITIS NOS OCT05-
462	ACUTE PHARYNGITIS OCT05-
463	ACUTE TONSILLITIS OCT05-
46430	AC EPIGLOTTITIS NO OBSTR OCT05-
46431	AC EPIGLOTTITIS W OBSTR OCT05-
4660	ACUTE BRONCHITIS OCT05-
475	PERITONSILLAR ABSCESS OCT05-
47822	PARAPHARYNGEAL ABSCESS OCT05-
47824	RETROPHARYNGEAL ABSCESS OCT05-
481	PNEUMOCOCCAL PNEUMONIA OCT05-
4820	K. PNEUMONIAE PNEUMONIA OCT05-
4821	PSEUDOMONAL PNEUMONIA OCT05-
4822	H.INFLUENZAE PNEUMONIA OCT05-
48230	STREPTOCOCCAL PNEUMN NOS OCT05-
48231	PNEUMONIA STRPTOCOCCUS A OCT05-
48232	PNEUMONIA STRPTOCOCCUS B OCT05-
48239	PNEUMONIA OTH STREP OCT05-
48240	STAPHYLOCOCCAL PNEU NOS OCT05-
48241	METHICILLIN SUSCEPTIBLE PNEUMONIA DUE TO STAPHYLOCOCCUS AUREUS OCT08-
48242	METHICILLIN RESISTANT PNEUMONIA DUE TO STAPHYLOCOCCUS AUREUS OCT08-
48249	STAPH PNEUMONIA NEC OCT05-
48281	PNEUMONIA ANAEROBES OCT05-
48282	PNEUMONIA E COLI OCT05-
48283	PNEUMO OTH GRM-NEG BACT OCT05-
48284	LEGIONNAIRES' DISEASE OCT05-
48289	PNEUMONIA OTH SPCF BACT OCT05-
4829	BACTERIAL PNEUMONIA NOS OCT05-
4843	PNEUMONIA IN WHOOPING COUGH OCT05-
4845	PNEUMONIA IN ANTHRAX OCT05-
4848	PNEUMONIA IN OTHER INF DIS OCT05-
485	BRONCHOPNEUMONIA ORG NOS OCT05-
486	PNEUMONIA, ORGANISM NOS OCT05-
490	BRONCHITIS NOS OCT05-
49122	OBS CHR BRONC W AC BRONC OCT05-
4941	BRONCHIECTASIS W AC EXAC OCT05-
5100	EMPYEMA WITH FISTULA OCT05-
5109	EMPYEMA W/O FISTULA OCT05-
5111	BACT PLEUR/EFFUS NOT TB OCT05-
5130	ABSCESS OF LUNG OCT05-
5131	ABSCESS OF MEDIASTINUM OCT05-
51901	TRACHEOSTOMY INFECTION OCT05-
5192	MEDIASTINITIS OCT05-
5220	PULPITIS OCT05-
5225	PERIAPICAL ABSCESS OCT05-
5227	PERIAPICAL ABSC W SINUS OCT05-
5230	ACUTE GINGIVITIS OCT05-
52300	ACUTE GINGITITIS, PLAQUE OCT06-
52301	AC GINGIVITIS,NONPLAQUE OCT06-
5233	ACUTE PERIODONTITIS OCT05-
52330	AGGRES PERIODONTITIS NOS OCT06-
52331	AGGRES PERIODONTITIS,LOC OCT06-
52332	AGGRES PERIODONTITIS,GEN OCT06-
52333	ACUTE PERIODONTITIS OCT06-
5264	INFLAMMATION OF JAW OCT05-
5273	SALIVARY GLAND ABSCESS OCT05-
5283	CELLULITIS/ABSCESS MOUTH OCT05-
53641	GASTROSTOMY INFECTION OCT05-
5400	AC APPEND W PERITONITIS
5401	ABSCESS OF APPENDIX
5409	ACUTE APPENDICITIS NOS
541	APPENDICITIS NOS
542	OTHER APPENDICITIS
56201	DVRTCLI SML INT W/O HMRG
56203	DVRTCLI SML INT W HMRHG
56211	DVRTCLI COLON W/O HMRHG
56213	DVRTCLI COLON W HMRHG
566	ANAL & RECTAL ABSCESS
5670	PERITONITIS IN INFEC DIS
5671	PNEUMOCOCCAL PERITONITIS

5672	SUPPURAT PERITONITIS NEC
56721	PERITONITIS (ACUTE) GEN OCT05-
56722	PERITONEAL ABSCESS OCT05-
56723	SPONTAN BACT PERITONITIS OCT05-
56729	SUPPURAT PERITONITIS NEC OCT05-
56731	PSOAS MUSCLE ABSCESS OCT05-
56738	RETROPERITON ABSCESS NEC OCT05-
56739	RETROPERITON INFECT NEC OCT05-
56781	CHOLEPERITONITIS OCT05-
56782	SCLEROSING MESENTERITIS OCT05-
56789	PERITONITIS NEC OCT05-
5679	PERITONITIS NOS
5695	INTESTINAL ABSCESS
56961	COLOSTY/ENTEROST INFECTN
5720	ABSCESS OF LIVER
5721	PORTAL PYEMIA
57400	CHOLELITH W AC CHOLECYST
57401	CHOLELITH/AC GB INF-OBST
57430	CHOLEDOCHOLITH/AC GB INF
57431	CHOLEDOCHLITH/AC GB-OBST
57460	GALL&BIL CAL W/AC W/O OB
57461	GALL&BIL CAL W/AC W OBS
57480	GAL&BIL CAL W/AC&CHR W/O
57481	GAL&BIL CAL W/AC&CH W OB
5750	ACUTE CHOLECYSTITIS
57510	CHOLECYSTITIS UNSPEC OCT05-
57512	AC&CHRON CHOLECYSTITIS OCT05-
5754	PERFORATION GALLBLADDER
5761	CHOLANGITIS
5763	PERFORATION OF BILE DUCT
5770	ACUTE PANCREATITIS OCT05-
59010	AC PYELONEPHRITIS NOS OCT05-
59011	AC PYELONEPHR W MED NECR OCT05-
5902	RENAL/PERIRENAL ABSCESS OCT05-
5903	PYELOURETERITIS CYSTICA OCT05-
59080	PYELONEPHRITIS NOS OCT05-
59081	PYELONEPHRIT IN OTH DIS OCT05-
5909	INFECTION OF KIDNEY NOS OCT05-
5950	ACUTE CYSTITIS OCT05-
5954	CYSTITIS IN OTH DIS OCT05-
59581	CYSTITIS CYSTICA OCT05-
59589	CYSTITIS NEC OCT05-
5959	CYSTITIS NOS OCT05-
5970	URETHRAL ABSCESS OCT05-
5990	URIN TRACT INFECTION NOS OCT05-
6010	ACUTE PROSTATITIS OCT05-
6012	ABSCESS OF PROSTATE OCT05-
6013	PROSTATOCYSTITIS OCT05-
6014	PROSTATITIS IN OTH DIS OCT05-
6018	PROSTATITIS OCT05-
6019	PROSTATITIS NOS OCT05-
6031	INFECTED HYDROCELE OCT05-
6040	ORCHITIS WITH ABSCESS OCT05-
60490	ORCHITIS/EPIDIDYMIT NOS OCT05-
60491	ORCHITIS IN OTH DISEASE OCT05-
6071	BALANOPOSTHITIS OCT05-
6072	INFLAM DIS, PENIS NEC OCT05-
6080	SEMINAL VESICULITIS OCT05-
6084	MALE GEN INFLAM DIS NEC OCT05-
6110	INFLAM DISEASE OF BREAST OCT05-
6140	AC SALPINGO-OOPHORITIS OCT05-
6141	CHRON SALPINGITIS OOPHORITIS OCT05-
6142	SALPINGO-OOPHORITIS NOS OCT05-
6143	ACUTE PARAMETRITIS OCT05-
6144	CHRON OR UNSP CELLULITIS OCT05-
6145	AC PELV PERITONITIS-FEM OCT05-
6149	PID NOS OCT05-
6150	AC UTERINE INFLAMMATION OCT05-
6159	UTERINE INFLAM DIS NOS OCT05-
6160	CERVICITIS OCT05-
61610	VAGINITIS NOS OCT05-
6163	BARTHOLIN'S GLND ABSCESS OCT05-
6164	ABSCESS OF VULVA NEC OCT05-
63400	SPON ABOR W PEL INF-UNSP OCT05-
63401	SPON ABOR W PELV INF-INC OCT05-
63402	SPON ABOR W PEL INF-COMP OCT05-
63500	LEG ABOR W PELV INF-UNSP OCT05-
63501	LEG ABOR W PELV INF-INC OCT05-
63502	LEG ABOR W PELV INF-COMP OCT05-
63600	ILLEG AB W PELV INF-UNSP OCT05-
63601	ILLEG AB W PELV INF-INC OCT05-
63602	ILLEG AB W PELV INF-COMP OCT05-
63700	ABORT NOS W PEL INF-UNSP OCT05-
63701	ABORT NOS W PEL INF-INC OCT05-
63702	ABORT NOS W PEL INF-COMP OCT05-
6380	ATTEM ABORT W PELVIC INF OCT05-
6390	POSTABORTION GU INFECT OCT05-
64650	BACTERIURIA PREG-UNSPEC OCT05-
64651	ASYM BACTERIURIA-DELIVER OCT05-
64652	ASY BACTERURIA-DEL W P/P OCT05-
64653	ASY BACTERIURIA-ANTEPART OCT05-
64654	ASY BACTERIURIA-POSTPART OCT05-
64660	GU INFECT IN PREG-UNSPEC OCT05-
64661	GU INFECTION-DELIVERED OCT05-
64662	GU INFECTION-DELIV W P/P OCT05-
64663	GU INFECTION-ANTEPARTUM OCT05-
64664	GU INFECTION-POSTPARTUM OCT05-
64710	GONORRHEA IN PREG-UNSPEC OCT05-
64711	GONORRHEA-DELIVERED OCT05-
64712	GONORRHEA-DELIVER W P/P OCT05-
64713	GONORRHEA-ANTEPARTUM OCT05-
64714	GONORRHEA-POSTPARTUM OCT05-
64780	INF DIS IN PREG NEC-UNSP OCT05-
64781	INFECT DIS NEC-DELIVERED OCT05-
64782	INFECT DIS NEC-DEL W P/P OCT05-
64783	INFECT DIS NEC-ANTEPART OCT05-
64784	INFECT DIS NEC-POSTPART OCT05-
64790	INFECT IN PREG NOS-UNSP OCT05-
64791	INFECT NOS-DELIVERED OCT05-
64792	INFECT NOS-DELIVER W P/P OCT05-
64793	INFECT NOS-ANTEPARTUM OCT05-
64794	INFECT NOS-POSTPARTUM OCT05-
65840	AMNIOTIC INFECTION-UNSP OCT05-
65841	AMNIOTIC INFECTION-DELIV OCT05-
65843	AMNIOTIC INFECT-ANTEPART OCT05-
67000	MAJOR PUERP INFECT-UNSP OCT05-
67002	MAJOR PUERP INF-DEL P/P OCT05-
67004	MAJOR PUERP INF-POSTPART OCT05-
67010	PUERP ENDOMETRITIS-UNSP OCT09-
67012	PUERP ENDOMET DEL W P/P OCT09-
67014	PUERP ENDOMET-POSTPART OCT09-
67020	PUERPERAL SEPSIS-UNSP OCT09-
67022	PUERPRL SEPSIS-DEL W P/P OCT09-
67024	PUERPERL SEPSIS-POSTPART OCT09-

67030	PUERP SEPTC THROMB-UNSP OCT09-
67032	PRP SPTC THRMB-DEL W P/P OCT09-
67034	PRP SEPTC THRMB-POSTPART OCT09-
67080	MAJ PRP INFEC NEC-UNSPEC OCT09-
67082	MAJ PRP INF NEC-DL W P/P OCT09-
67084	MAJ PUERP INFEC NEC-P/P OCT09-
67500	INFECT NIPPLE PREG-UNSP OCT05-
67501	INFECT NIPPLE-DELIVERED OCT05-
67502	INFECT NIPPLE-DEL W P/P OCT05-
67503	INFECT NIPPLE-ANTEPARTUM OCT05-
67504	INFECT NIPPLE-POSTPARTUM OCT05-
67510	BREAST ABSCESS PREG-UNSP OCT05-
67511	BREAST ABSCESS-DELIVERED OCT05-
67512	BREAST ABSCESS-DEL W P/P OCT05-
67513	BREAST ABSCESS-ANTEPART OCT05-
67514	BREAST ABSCESS-POSTPART OCT05-
67580	BREAST INF PREG NEC-UNSP OCT05-
67581	BREAST INFECT NEC-DELIV OCT05-
67582	BREAST INF NEC-DEL W P/P OCT05-
67583	BREAST INF NEC-ANTEPART OCT05-
67584	BREAST INF NEC-POSTPART OCT05-
67590	BREAST INF PREG NOS-UNSP OCT05-
67591	BREAST INFECT NOS-DELIV OCT05-
67592	BREAST INF NOS-DEL W P/P OCT05-
67593	BREAST INF NOS-ANTEPART OCT05-
67594	BREAST INF NOS-POSTPART OCT05-
6800	CARBUNCLE OF FACE OCT05-
6801	CARBUNCLE OF NECK OCT05-
6802	CARBUNCLE OF TRUNK OCT05-
6803	CARBUNCLE OF ARM OCT05-
6804	CARBUNCLE OF HAND OCT05-
6805	CARBUNCLE OF BUTTOCK OCT05-
6806	CARBUNCLE OF LEG OCT05-
6807	CARBUNCLE OF FOOT OCT05-
6808	CARBUNCLE, SITE NEC OCT05-
6809	CARBUNCLE NOS OCT05-
68100	CELLULITIS, FINGER NOS OCT05-
68101	FELON OCT05-
68102	ONYCHIA OF FINGER OCT05-
68110	CELLULITIS, TOE NOS OCT05-
68111	ONYCHIA OF TOE OCT05-
6819	CELLULITIS OF DIGIT NOS OCT05-
6820	CELLULITIS OF FACE OCT05-
6821	CELLULITIS OF NECK OCT05-
6822	CELLULITIS OF TRUNK OCT05-
6823	CELLULITIS OF ARM OCT05-
6824	CELLULITIS OF HAND OCT05-
6825	CELLULITIS OF BUTTOCK OCT05-
6826	CELLULITIS OF LEG OCT05-
6827	CELLULITIS OF FOOT OCT05-
6828	CELLULITIS, SITE NEC OCT05-
6829	CRLLULITIS, SITE NOS OCT05-
683	ACUTE LYMPHADENITIS OCT05-
684	IMPETIGO OCT05-
68600	PYODERMA NOS OCT05-
68609	PYODERMA OTHER OCT05-
6868	LOCAL SKIN INFECTION NEC OCT05-
6869	LOCAL SKIN INFECTION NOS OCT05-
69581	RITTER'S DISEASE OCT05-
70700*	DECUBITUS ULCER SITE NOS OCT05-
70701*	DECUBITUS ULCER,ELBOW OCT05-
70702*	DECUBITUS ULCER,UP BACK OCT05-
70703*	DECUBITUS ULCER,LOW BACK OCT05-
70704*	DECUBITUS ULCER,HIP OCT05-
70705*	DECUBITUS ULCER,BUTTOCK OCT05-
70706*	DECUBITUS ULCER,ANKLE OCT05-
70707*	DECUBITUS ULCER,HEEL OCT05-
70709*	DECUBITUS ULCER,SITE NEC OCT05-
70720	PRESSURE ULCER UNSPECIFIED STAGE OCT08-
70722	PRESSURE ULCER STAGE II OCT08-
70723	PRESSURE ULCER STAGE III OCT08-
70724	PRESSURE ULCER STAGE IV OCT08-
71100	PYOGEN ARTHRITIS-UNSPEC OCT05-
71101	PYOGEN ARTHRITIS-SHLDER OCT05-
71102	PYOGEN ARTHRITIS-UP/ARM OCT05-
71103	PYOGEN ARTHRITIS-FOREARM OCT05-
71104	PYOGEN ARTHRITIS-HAND OCT05-
71105	PYOGEN ARTHRITIS-PELVIS OCT05-
71106	PYOGEN ARTHRITIS-L/LEG OCT05-
71107	PYOGEN ARTHRITIS-ANKLE OCT05-
71108	PYOGEN ARTHRITIS NEC OCT05-
71109	PYOGEN ARTHRITIS-MULT OCT05-
71190	INF ARTHRITIS NOS-UNSPEC OCT05-
71191	INF ARTHRITIS NOS-SHLDER OCT05-
71192	INF ARTHRITIS NOS-UP/ARM OCT05-
71193	INF ARTHRIT NOS-FOREARM OCT05-
71194	INF ARTHRIT NOS-HAND OCT05-
71195	INF ARTHRIT NOS-PELVIS OCT05-
71196	INF ARTHRIT NOS-L/LEG OCT05-
71197	INF ARTHRIT NOS-ANKLE OCT05-
71198	INF ARTHRIT NOS-OTH SITE OCT05-
71199	INF ARTHRITIS NOS-MULT OCT05-
7280	INFECTIVE MYOSITIS OCT05-
72886	NECROTIZING FASCIITIS OCT05-
73000	AC OSTEOMYELITIS-UNSPEC OCT05-
73001	AC OSTEOMYELITIS-SHLDER OCT05-
73002	AC OSTEOMYELITIS-UP/ARM OCT05-
73003	AC OSTEOMYELITIS-FOREARM OCT05-
73004	AC OSTEOMYELITIS-HAND OCT05-
73005	AC OSTEOMYELITIS-PELVIS OCT05-
73006	AC OSTEOMYELITIS-L/LEG OCT05-
73007	AC OSTEOMYELITIS-ANKLE OCT05-
73008	AC OSTEOMYELITIS NEC OCT05-
73009	AC OSTEOMYELITIS-MULT OCT05-
73010	CHR OSTEOMYELITIS-UNSP OCT05-
73011	CHR OSTEOMYELIT-SHLDER OCT05-
73012	CHR OSTEOMYELIT-UP/ARM OCT05-
73013	CHR OSTEOMYELIT-FOREARM OCT05-
73014	CHR OSTEOMYELIT-HAND OCT05-
73015	CHR OSTEOMYELIT-PELVIS OCT05-
73016	CHR OSTEOMYELIT-L/LEG OCT05-
73017	CHR OSTEOMYELIT-ANKLE OCT05-
73018	CHR OSTEOMYELIT NEC OCT05-
73019	CHR OSTEOMYELIT-MULT OCT05-
73020	OSTEOMYELITIS NOS-UNSPEC OCT05-
73021	OSTEOMYELITIS NOS-SHLDER OCT05-
73022	OSTEOMYELITIS NOS-UP/ARM OCT05-
73023	OSTEOMYELIT NOS-FOREARM OCT05-
73024	OSTEOMYELITIS NOS-HAND OCT05-
73025	OSTEOMYELITIS NOS-PELVIS OCT05-
73026	OSTEOMYELITIS NOS-L/LEG OCT05-
73027	OSTEOMYELITIS NOS-ANKLE OCT05-
73028	OSTEOMYELIT NOS-OTH SITE OCT05-

73029	OSTEOMYELITIS NOS-MULT OCT05-
73030	PERIOSTITIS-UNSPEC OCT05-
73031	PERIOSTITIS-SHLDER OCT05-
73032	PERIOSTITIS-UP/ARM OCT05-
73033	PERIOSTITIS-FOREARM OCT05-
73034	PERIOSTITIS-HAND OCT05-
73035	PERIOSTITIS-PELVIS OCT05-
73036	PERIOSTITIS-L/LEG OCT05-
73037	PERIOSTITIS-ANKLE OCT05-
73038	PERIOSTITIS NEC OCT05-
73039	PERIOSTITIS-MULT OCT05-
73080	BONE INFECT NEC-UNSPEC OCT05-
73081	BONE INFECT NEC-SHLDER OCT05-
73082	BONE INFECT NEC-UP/ARM OCT05-
73083	BONE INFECT NEC-FOREARM OCT05-
73084	BONE INFECT NEC-HAND OCT05-
73085	BONE INFECT NEC-PELVIS OCT05-
73086	BONE INFECT NEC-L/LEG OCT05-
73087	BONE INFECT NEC-ANKLE OCT05-
73088	BONE INFECT NEC-OTH SITE OCT05-
73089	BONE INFECT NEC-MULT OCT05-
73090	BONE INFEC NOS-UNSP SITE OCT05-
73091	BONE INFECT NOS-SHLDER OCT05-
73092	BONE INFECT NOS-UP/ARM OCT05-
73093	BONE INFECT NOS-FOREARM OCT05-
73094	BONE INFECT NOS-HAND OCT05-
73095	BONE INFECT NOS-PELVIS OCT05-
73096	BONE INFECT NOS-L/LEG OCT05-
73097	BONE INFECT NOS-ANKLE OCT05-
73098	BONE INFECT NOS-OTH SITE OCT05-
73099	BONE INFECT NOS-MULT OCT05-
7713	TETANUS NEONATORUM OCT05-
7714	OMPHALITIS OF NEWBORN OCT05-
7715	NEONATAL INFEC MASTITIS OCT05-
77181	NB SEPTICEMIA SEPSIS OCT05-
77182	NB URINARY TRACT INFECTN OCT05-
77183	BACTEREMIA OF NEWBORN OCT05-
77189	PERINATAL INFECTION NEC OCT05-
7775	NECROT ENTEROCOLITIS NB OCT05-
77750	NECROT ENTEROCOLITIS IN NEWBORN, UNSPECIFIED OCT08-
77751	STAGE I NECROT ENTEROCOLITIS IN NEWBORN OCT08-
77752	STAGE II NECROT ENTEROCOLITIS IN NEWBORN OCT08-
77753	STAGE III NECROT ENTEROCOLITIS IN NEWBORN OCT08-
7854	GANGRENE OCT05-
78552	SEPTIC SHOCK OCT05-
7907	BACTEREMIA OCT05-
9101	ABRASION HEAD-INFECTED OCT05-
9103	BLISTER HEAD-INFECTED OCT05-
9105	INSECT BITE HEAD-INFECT OCT05-
9107	FOREIGN BODY HEAD-INFECT OCT05-
9109	SUPERF INJ HEAD NEC-INF OCT05-
9111	ABRASION TRUNK-INFECTED OCT05-
9113	BLISTER TRUNK-INFECTED OCT05-
9115	INSECT BITE TRUNK-INFEC OCT05-
9117	FOREIGN BODY TRUNK-INFEC OCT05-
9119	SUPERF INJ TRNK NEC-INF OCT05-
9121	ABRASION SHLDR/ARM-INFEC OCT05-
9123	BLISTER SHOULDER/ARM-INF OCT05-
9125	INSECT BITE SHLD/ARM-INF OCT05-
9127	FB SHOULDER/ARM-INFECT OCT05-
9129	SUPERF INJ SHLDR NEC-INF OCT05-
9131	ABRASION FOREARM-INFECT OCT05-
9133	BLISTER FOREARM-INFECTED OCT05-
9135	INSECT BITE FOREARM-INF OCT05-
9137	FOREIGN BODY FOREARM-INF OCT05-
9139	SUPRF INJ FORARM NEC-INF OCT05-
9141	ABRASION HAND-INFECTED OCT05-
9143	BLISTER HAND-INFECTED OCT05-
9145	INSECT BITE HAND-INFECT OCT05-
9147	FOREIGN BODY HAND-INFECT OCT05-
9149	SUPERF INJ HAND NEC-INF OCT05-
9151	ABRASION FINGER-INFECTED OCT05-
9153	BLISTER FINGER-INFECTED OCT05-
9155	INSECT BITE FINGER-INFEC OCT05-
9157	FOREIGN BODY FINGER-INF OCT05-
9159	SUPRF INJ FINGER NEC-INF OCT05-
9161	ABRASION HIP/LEG-INFECT OCT05-
9163	BLISTER HIP & LEG-INFECT OCT05-
9165	INSECT BITE HIP/LEG-INF OCT05-
9167	FOREIGN BDY HIP/LEG-INF OCT05-
9169	SUPERF INJ LEG NEC-INFEC OCT05-
9171	ABRASION FOOT/TOE-INFEC OCT05-
9173	BLISTER FOOT & TOE-INFEC OCT05-
9175	INSECT BITE FOOT/TOE-INF OCT05-
9177	FOREIGN BDY FOOT/TOE-INF OCT05-
9179	SUPERF INJ FOOT NEC-INF OCT05-
9191	ABRASION NEC-INFECTED OCT05-
9193	BLISTER NEC-INFECTED OCT05-
9195	INSECT BITE NEC-INFECTED OCT05-
9197	SUPERFICIAL FB NEC-INFEC OCT05-
9199	SUPERFIC INJ NEC-INFECT OCT05-
99590	SIRS, NOS OCT05-
99591	SIRS-INFECT W/O ORG DYSF OCT05-
99592	SIRS-INFECT W ORGAN DYSF OCT05-
99660	INFECT INFLAMM DEVICE IMPLANT GRAFT NOS OCT05-
99661	INFECT INFLAMM CARDIAC DEVICE IMPLANT GRAFT OCT05-
99662	INFECT INFLAMM VASCULAR DEVICE IMPLANT GRAFT OCT05-
99663	INFECT INFLAMM NERV DEVICE IMPLANT GRAFT OCT05-
99664	INFECT INFLAMM URINARY CATH OCT05-
99665	INFECT INFLAMM GU DEVICE IMPLANT GRAFT OCT05-
99666	INFECT INFLAMM JOINT PROSTH OCT05-
99667	INFECT INFLAMM OTH ORTHOP DEVICE IMPLANT GRAFT NOS OCT05-
99669	INFECT INFLAMM OTH DEVICE IMPLANT GRAFT OCT05-
99762	INFECTION AMPUTAT STUMP OCT05-
99851	INFECTED POSTOP SEROMA OCT05-
99859	OTHER POSTOP INFECTION OCT05-
9993	INFEC COMPL MED CARE NEC OCT05-

*No longer valid in FY2009 (Effective October 1, 2008)

Appendix I – Definitions of Neonate, Newborn, Normal Newborn, and Outborn

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.

A newborn is defined as a "neonate" with any of the following:

- an ICD-9-CM code for in-hospital live birth with age in days equal to 0 or missing
- an admission type of newborn (SID ATYPE=4) with age in days equal to 0 without a diagnosis for out-of-hospital live birth
- an admission type of newborn (SID ATYPE=4) with point of origin for Born inside this hospital

A normal newborn is defined as a "newborn" with DRG 391 or MS-DRG 795

Outborn is defined as a "neonate" that does not meet the definition of "newborn" with either of the following:

- age in days less than 2 days and not missing
- admission type of newborn (ATYPE=4) with age in days missing or point of origin for Born outside of this hospital

Newborn in Hospital Live Birth Codes

V3000	SINGLE LB IN-HOSP W/O CS OCT05-	V3401	OTH MULT LB-IN HOSP W CS OCT05-
V3001	SINGLE LB IN-HOSP W CS OCT05-	V3500	OTH MULT SB-HOSP W/O CS OCT05-
V3100	TWIN-MATE LB-HOSP W/O CS OCT05-	V3501	OTH MULT SB-IN HOSP W CS OCT05-
V3101	TWIN-MATE LB-IN HOS W CS OCT05-	V3600	MULT LB/SB-IN HOS W/O CS OCT05-
V3200	TWIN-MATE SB-HOSP W/O CS OCT05-	V3601	MULT LB/SB-IN HOSP W CS OCT05-
V3201	TWIN-MATE SB-HOSP W CS OCT05-	V3700	MULT BRTH NOS-HOS W/O CS OCT05-
V3300	TWIN-NOS-IN HOSP W/O CS OCT05-	V3701	MULT BIRTH NOS-HOSP W CS OCT05-
V3301	TWIN-NOS-IN HOSP W CS OCT05-	V3900	LIVEBORN NOS-HOSP W/O CS OCT05-
V3400	OTH MULT LB-HOSP W/O CS OCT05-	V3901	LIVEBORN NOS-HOSP W CS OCT05-

Neonate Observation and Evaluation codes:

V290	NB OBSRV SUSPCT INFECT	V293	NB OBS GENETC/METABL CND
V291	NB OBSRV SUSPCT NEURLGCL	V298	NB OBSRV OTH SUSPCT COND
V292	OBSRV NB SUSPC RESP COND	V299	NB OBSRV UNSP SUSPCT CND

Newborn out of Hospital codes:

V301	SINGL LIVEBRN-BEFORE ADM OCT05-	V342	OTH MULTIPLE NB-NONHOSP OCT05-
V302	SINGLE LIVEBORN-NONHOSP OCT05-	V351	OTH MULT SB-BEFORE ADM OCT05-
V311	TWIN, MATE LB-BEFORE ADM OCT05-	V352	OTH MULTIPLE SB-NONHOSP OCT05-
V312	TWIN, MATE LB-NONHOSP OCT05-	V361	MULT NB/SB-BEFORE ADM OCT05-
V321	TWIN, MATE SB-BEFORE ADM OCT05-	V362	MULTIPLE NB/SB-NONHOSP OCT05-
V322	TWIN, MATE SB-NONHOSP OCT05-	V371	MULT BRTH NOS-BEFORE ADM OCT05-
V331	TWIN NOS-BEFORE ADMISSN OCT05-	V372	MULT BIRTH NOS-NONHOSP OCT05-
V332	TWIN NOS-NONHOSP OCT05-	V391	LIVEBORN NOS-BEFORE ADM OCT05-
V341	OTH MULT NB-BEFORE ADM OCT05-	V392	LIVEBORN NOS-NONHOSP OCT05-

Appendix J – Admission Codes for Transfers

SID ASOURCE Codes

2 - Another hospital
3 - Another facility, including long term care

POINTOFORIGINUB04 Codes

4 - Transfer from a hospital
5 - Transfer from a skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF)
6 - Transfer from another health care facility

If Admission Type is newborn (ATYPE=4), POINTOFORIGINUB04 codes are as follows:
5- Born inside this hospital
6 - Born outside of this hospital

Appendix K – Stratification

The PDI software reports rates stratified by age and/or birth weight and, in some cases, by specified clinical strata. Refer to the individual Technical Specifications documents for indicator-specific stratification.

All PDIs stratify rates based on age and/or birth weight. The values of three variables related to age and weight are used in determining cases to include in the denominator. These values are also used in assigning cases to stratification categories.

Pediatric Age in Years

The values for Pediatric Age in Years include the following:

- 1 = Less than one (1) year
- 2 = 1 to 2 years
- 3 = 3 to 5 years
- 4 = 6 to 12 years
- 5 = 13 to 17 years

Age in Days

Age in Days is defined on patients less than one year. Possible values for this category are as follows:

- 0 = N/A
- 1 = 0 to 28 days
- 2 = 29 to 60 days
- 3 = 61 to 90 days
- 4 = 91 to 365 days

Birth Weight

Values assigned to Birth Weight categirues are based on ICD-9-CM diagnosis codes that specify infant weight in grams. The values are as follows:

- 0 = N/A
- 1 = 0 to 499 g
- 2 = 500 to 999 g
- 3 = 1000 to 1499 g
- 4 = 1500 to 1999 g
- 5 = 2000 to 2500 g

NQI 1, Iatrogenic Pneumothorax in Neonates, stratifies rates based on the Birth Weight values of 2 - 5. PDI 5, Iatrogenic Penumothorax, uses the values of 2-5 for Pediatric Age in Years as stratification categories and includes a stratification category for neonates with a Birth Weight of > 2500 g. Cases are assigned to this stratification category based on diagnosis codes. All other Provider-Level PDIs provide "Age stratified rates" as shown in Table 1.

Table 1 - Provider-level PDI Stratification Categories

Rate Category	How Assigned
Neonate, < 2000 g	Neonate = true, Birth Weight value < 5
Neonate, ≥ 2000 g	Neonate = true, Birth Weight value = 5 or diagnosis code for birth weight > 2500 g.
29 days - 364 days	Pediatric Age in Years = 1, Age in Days > 1
1 - 2 years	Pediatric Age in Years = 2
3 - 5 years	Pediatric Age in Years = 3
6 - 12 years	Pediatric Age in Years = 4
13 - 17 years	Pediatric Age in Years = 5

The "Age stratified rates" categories for Area-level PDIs vary, as shown in Table 2.

Table 2 - Area-level PDI Categories

Rate Category	How Assigned	PDI 14	PDI 15	PDI 16	PDI 17	PDI 18
91 days - 364 days	Pediatric Age in Years = 1, Age in Days = 4			Y		Y
2 years	Value of Data Element "Age" = 2	Y				
1-2 years	Pediatric Age in Years = 2			Y	Y	Y
3 - 5 years	Pediatric Age in Years = 3	Y		Y	Y	Y
6 - 12 years	Pediatric Age in Years = 4	Y	Y	Y	Y	Y
13 - 17 years	Pediatric Age in Years = 5	Y	Y	Y	Y	Y

Appendix L – Low Birth Weight Categories

Low Birth Weight categories:

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	LOW BIRTHWT STATUS <500G
500 to 999 grams - Birth Weight Category 2	
76402	LT-FOR-DATES 500-749G
76412	LT-DATE W/MAL 500-749G
76422	FETAL MALNUTR 500-749G
76492	FET GROWTH RET 500-749G
76502	EXTREME IMMATUR 500-749G
76512	PRETERM NEC 500-749G
76403	LT-FOR-DATES 750-999G
76413	LT-DATE W/MAL 750-999G
76423	FETAL MAL 750-999G
76493	FET GROWTH RET 750-999G
76503	EXTREME IMMATUR 750-999G
76513	PRETERM NEC 750-999G
V2132	LOW BIRTHWT 500-999G

1000 to 1499 grams - Birth Weight Category 3	
76404	LT-FOR-DATES 1000-1249G
76414	LT-DATE W/MAL 1000-1249G
76424	FETAL MAL 1000-1249G
76494	FET GRWTH RET 1000-1249G
76504	EXTREME IMMAT 1000-1249G
76514	PRETERM NEC 1000-1249G
76405	LT-FOR-DATES 1250-1499G
76415	LT-DATE W/MAL 1250-1499G
76425	FETAL MAL 1250-1499G
76495	FET GRWTH RET 1250-1499G
76505	EXTREME IMMAT 1250-1499G
76515	PRETERM NEC 1250-1499G
V2133	LOW BIRTHWT 1000-1499G
1500 to 1999 grams - Birth Weight Category 4	
76406	LT-FOR-DATES 1500-1749G
76416	LT-DATE W/MAL 1500-1749G
76426	FETAL MAL 1500-1749G
76496	FET GRWTH RET 1500-1749G
76506	EXTREME IMMAT 1500-1749G
76516	PRETERM NEC 1500-1749G
76407	LT-FOR-DATES 1750-1999G

76417	LT-DATE W/MAL 1750-1999G
76427	FETAL MALNUTR 1750-1999G
76497	FET GRWTH RET 1750-1999G
76507	EXTREME IMMAT 1750-1999G
76517	PRETERM NEC 1750-1999G
V2134	LOW BIRTHWT 1500-1999G
2000 to 2499 grams - Birth Weight Category 5	
76408	LT-FOR-DATES 2000-2499G
76418	LT-DATE W/MAL 2000-2499G
76428	FETAL MALNUTR 2000-2499G
76498	FET GRWTH RET 2000-2499G
76508	EXTREME IMMAT 2000-2499G
76518	PRETERM NEC 2000-2499G
V2135	LOW BIRTHWT 2000-2500G

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0368 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Post operative Wound Dehiscence (PSI 14)
De.2 **Brief description of measure:** Percentage of abdominopelvic surgery cases with reclosure of postoperative disruption of abdominal wall.
1.1-2 **Type of Measure:** Outcome De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** Patient Safety for Selected Indicators composite (NQF #0531)
De.4 **National Priority Partners Priority Area:** Population health, Safety De.5 **IOM Quality Domain**: Effectiveness De.6 **Consumer Care Need:** Getting better

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least	**B** Y☐

every 3 years. Yes, information provided in contact section	N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Based on two-stage review of randomly selected deaths, Hannan et al. reported that cases with a secondary diagnosis of wound disruption were 3.0 times more likely to have received care that departed from professionally recognized standards than cases without that code (4.3% versus 1.7%), after adjusting for patient demographic, geographic, and hospital characteristics. [1] 1a.4 **Citations for Evidence of High Impact:** Updated citations will be presented in the May Steering Committee meeting [1] Hannan EL, Bernard HR, O'Donnell JF, Kilburn H, Jr. A methodology for targeting hospital cases for quality of care record reviews. Am J Public Health 1989;79(4):430-6.	**1a** C☐ P☐ M☐ N☐
1b. Opportunity for Improvement 1b.1 **Benefits (improvements in quality) envisioned by use of this measure:** Postoperative wound dehiscence can be easily and accurately measured using administrative data. Moreover, these cases often represent a significant deviation from normal standards of care. Identifying them can represent both a useful metric for measuring quality as well quality improvement. 1b.2 **Summary of data demonstrating performance gap (variation or overall poor performance) across**	**1b** C☐ P☐ M☐ N☐

providers:

Adjusted per 1,000 rates by patient/hospital characteristics, 2007

Estimate	Standard error	Age: for conditions affecting any age
1.571	0.048	18-44
2.344	0.058	45-64
4.143	0.093	65 and over

Estimate	Standard error	Age: for conditions affecting elderly
3.314	0.164	65-69
4.416	0.187	70-74
5.044	0.213	75-79
4.107	0.249	80-84
3.903	0.264	85 and over

Estimate	Standard error	Gender
4.842	0.092	Male
1.539	0.037	Female

Estimate	Standard error	Median income of patient´s ZIP code
2.784	0.073	First quartile (lowest income)
2.658	0.073	Second quartile
2.086	0.075	Third quartile
2.393	0.077	Fourth quartile (highest income)

Estimate	Standard error	Location of patient residence (NCHS)
2.371	0.072	Large central metropolitan
2.461	0.076	Large fringe metropolitan
2.691	0.083	Medium metropolitan
2.461	0.117	Small metropolitan
2.410	0.109	Micropolitan
2.612	0.137	Not metropolitan or micropolitan

Estimate	Standard error	Expected payment source
2.236	0.065	Private insurance
2.396	0.051	Medicare
4.096	0.153	Medicaid
3.011	0.216	Other insurance
3.054	0.188	Uninsured / self-pay / no charge

Estimate	Standard error	Hospital Ownership/control
2.509	0.043	Private, not-for-profit
2.180	0.108	Private, for-profit
2.643	0.101	Public

Estimate	Standard error	Teaching status
2.707	0.062	Teaching
2.364	0.047	Nonteaching

Estimate	Standard error	Location of hospital
2.335	0.062	Large central metropolitan
2.493	0.088	Large fringe metropolitan
2.699	0.080	Medium metropolitan

2.457	0.107	Small metropolitan
2.478	0.121	Micropolitan
3.115	0.253	Not metropolitan or micropolitan
Estimate	Standard error	Bed size of hospital
2.692	0.125	Less than 100
2.276	0.060	100 - 299
2.682	0.066	300 - 499
2.497	0.081	500 or more

1b.3 Citations for data on performance gap:
See the following report for a complete treatment of the methodology: "Methods: Applying AHRQ Quality Indicators to Healthcare Cost and Utilization Project (HCUP) Data for the National Healthcare Quality Report" [URL: http://hcupnet.ahrq.gov/QI%20Methods.pdf?JS=Y]

1b.4 Summary of Data on disparities by population group:
After adjusting for age, gender, race, diabetes, CVD, and cancer, compared with those without CKD, hospitalized patients with CKD were showed no difference in postoperative wound dehiscence (aRR = 1.12, 95% CI = 0.74 to 1.70, 0.600). [1]

Retrospective analysis of a nationally representative dataset using Nationwide Inpatient Sample (representative 20% sample from 37 states) for 5 years (2000 through 2004). Outcome = occurrence of at least one of the applicable PSIs on multiple logistic regression analysis, with confirmation by sensitivity analysis. [2]

Patients age 65 and older experienced significantly higher rates than younger patients for postoperative wound dehiscence. [3]

1b.5 Citations for data on Disparities:
Data for patients hospitalized in the Veteran´s Health Administration during 2004 to 2005 was analyzed to conduct a cross-sectional study of Chronic Kidney Disease (CKD) and adverse safety events. We identified 315,213 Veterans Health Administration (VHA) patients with at least one acute hospitalization within the study period, CKD was present among 29% (n = 71,666) of the study population, and these patients were older; slightly less likely to be black; and more likely to have diabetes, cardiovascular disease (CVD), cancer, and length of stay (LOS) >3 d than those without CKD. [1]

A total of 1.35 million trauma patients were identified, with 19,338 patients (1.43%) experiencing at least one of the applicable PSIs. On multivariate analysis, controlling for injury severity and disease comorbidity, the adjusted odds ratios (ORs) for occurrence of at least 1 applicable PSI were noted to increase for patients who are 1) above age 35, 2) male gender (OR 1.25, 95% CI 1.19-1.31), and 3) black (OR 1.20 vs. whites, 95% CI 1.10-1.30) but not for any other racial groups. These results did not change significantly on sensitivity analysis. Patients who are above age 35, male gender, and black are associated with increased likelihood of experiencing a patient safety event in trauma care. When all else is equal, black patients are approximately 20% more likely than any other racial groups to experience a patient safety event, even after controlling for injury severity and disease comorbidity. [2]

HCUPnet generated statistics using data from the 2004 Nationwide Inpatient Sample (NIS), which contains all payer data on hospital inpatient stays from states participating in HCUP and is designed to approximate a 20% sample of U.S. community hospitals. As testimony to its size, the 2004 NIS contains data on approximately 8 million inpatient hospital discharge records. Statistical methods not specified. [3]

References
[1] Seliger Stephen L; Zhan Min; Hsu Van Doren; Walker Lori D; Fink Jeffrey C. Chronic kidney disease adversely influences patient safety. J Am Soc Nephrol. 2008 December; 19(12): 2414-2419. doi: 10.1681/ASN.2008010022.
[2] Chang DC, Handly N, Abdullah F, Efron DT, Haut ER, Haider AH, Pronovost PJ, Cornwell EE.The occurrence of potential patient safety events among trauma patients: are they random? Ann Surg. 2008 Feb;247(2):327-34. PMID: 18216541

[3] Thornlow DK. Increased risk for patient safety incidents in hospitalized older adults. MedSurg Nursing, 18, 5, 287(5)

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Based on two-stage review of randomly selected deaths, Hannan et al. reported that cases with a secondary diagnosis of wound disruption were 3.0 times more likely to have received care that departed from professionally recognized standards than cases without that code (4.3% versus 1.7%), after adjusting for patient demographic, geographic, and hospital characteristics. [1]
References:
[1] Hannan EL, Bernard HR, O'Donnell JF, Kilburn H, Jr. A methodology for targeting hospital cases for quality of care record reviews. Am J Public Health 1989;79(4):430-6.

1c.2-3. Type of Evidence: Expert opinion, Systematic synthesis of research

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
Based on two-stage review of randomly selected deaths, Hannan et al. reported that cases with a secondary diagnosis of wound disruption were 3.0 times more likely to have received care that departed from professionally recognized standards than cases without that code (4.3% versus 1.7%), after adjusting for patient demographic, geographic, and hospital characteristics. [1]
References:
[1] Hannan EL, Bernard HR, O'Donnell JF, Kilburn H, Jr. A methodology for targeting hospital cases for quality of care record reviews. Am J Public Health 1989;79(4):430-6.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**
Not Applicable. Testing, rating, and review were conducted by the project team. A full report on the literature review and empirical evaluation can be found in Refinement of the HCUP Quality Indicators by the UCSF-Stanford EPC, Detailed coding information for each QI is provided in the document Prevention Quality Indicators Technical Specifications. Rating of performance on empirical evaluations, ranged from 0 to 26. The scores were intended as a guide for summarizing the performance of each indicator on four empirical tests of precision (signal variance, area-level share, signal ratio, and R-squared) and five tests of minimum bias (rank correlation, top and bottom decile movement, absolute change, and change over two deciles), as described in the previous section.

1c.6 Method for rating evidence: The project team conducted empirical analyses to explore the frequency and variation of the indicators, the potential bias, based on limited risk adjustment, and the relationship between indicators. The data sources used in the empirical analyses were the 1997 Florida State Inpatient Database (SID) for initial testing and development and the 1997 HCUP State Inpatient Database for 19 States (referred to in this guide as the HCUP SID) for the final empirical analyses.
All potential indicators were examined empirically by developing and conducting statistical tests for precision, bias, and relatedness of indicators. Three different estimates of hospital performance were calculated for each indicator:

1. The raw indicator rate was calculated using the number of adverse events in the numerator divided by the number of discharges in the population at risk by hospital.
2. The raw indicator was adjusted to account for differences among hospitals in age, gender, modified DRG, and comorbidities.

- Adjacent DRG categories that were separated by the presence or absence of comorbidities or complications were collapsed to avoid adjusting for the complication being measured. Most of the super-Major Diagnostic Category (MDC) DRG categories were excluded for the same reason.
- APR-DRG risk adjustment was not implemented because removing applicable complications from each indicator was beyond the scope of this project.
- The ICD-9-CM codes used to define comorbidity categories were modified to exclude conditions likely to represent potentially preventable complications in certain settings.
- "Acute on chronic" comorbidities were captured so that some patients with especially severe comorbidities would not be mislabeled as not having conditions of interest.

1c
C☐
P☐
M☐
N☐

• Comorbidities in obstetric patients were added. • 3. Multivariate signal extraction methods were applied to adjust for reliability by estimating the amount of "noise" (i.e., variation due to random error) relative to the amount of "signal" (i.e., systematic variation in hospital performance or reliability) for each indicator. Similar reliability adjustment has been used in the literature for similar purposes.40 41 The project team constructed a set of statistical tests to examine precision, bias, and relatedness of indicators for all accepted Provider-level Indicators, and precision and bias for all accepted Area-level Indicators. It should be noted that rates based on fewer than 30 cases in the numerator or the denominator are not reported. This exclusion rule serves two purposes: • It eliminates unstable estimates based on too few cases. • It helps protect the identities of hospitals and patients. 1c.7 **Summary of Controversy/Contradictory Evidence:** See the following for a complete treatment of the topic: http://www.qualityindicators.ahrq.gov/downloads/psi/psi_guide_v31.pdf Note: The Literature Review Findings column summarizes evidence specific to each potential concern on the link between the PQIs and quality of care, as described in step 3 above. A question mark (?) indicates that the concern is theoretical or suggested, but no specific evidence was found in the literature. A check mark indicates that the concern has been demonstrated in the literature. 1c.8 **Citations for Evidence (***other than guidelines***):** Updated citations will be presented in the May Steering Committee meeting http://www.qualityindicators.ahrq.gov/downloads/psi/psi_guide_v31.pdf 1c.9 **Quote the Specific guideline recommendation (***including guideline number and/or page number***):** Not Applicable. 1c.10 **Clinical Practice Guideline Citation:** Not Applicable. 1c.11 **National Guideline Clearinghouse or other URL:** Not Applicable. 1c.12 **Rating of strength of recommendation (***also provide narrative description of the rating and by whom***):** Not Applicable. 1c.13 **Method for rating strength of recommendation** (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*: Not Applicable. 1c.14 **Rationale for using this guideline over others:** No competing measures found.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 **Do you have a web page where current detailed measure specifications can be obtained?** S.2 **If yes, provide web page URL:** **2a. Precisely Specified**	**2a-specs** **C☐**

2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*):
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.

2a.2 Numerator Time Window (*The time period in which cases are eligible for inclusion in the numerator*):
Time window can be determined by user, but is generally a calendar year.

2a.3 Numerator Details (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*):
Discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD-9-CM code for reclosure of postoperative disruption of abdominal wall procedure.

ICD-9-CM Reclosure procedure code:
5461
RECLOSURE OF POSTOPERATIVE DISRUPTION OF ABDOMINAL WALL

2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured*):
All abdominopelvic surgical discharges age 18 and older.

2a.5 Target population gender: Female, Male
2a.6 Target population age range: 18 and older

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator*):
Time window can be determined by user, but is generally a calendar year.

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions*):
All abdominopelvic surgical discharges age 18 and older.
ICD-9-CM Abdominopelvic procedure codes:
1731
LAPAROSCOPIC MULTIPLE SEGMENTAL RESECTION OF LARGE INTESTINE OCT08-
1732
LAPAROSCOPIC CECECTOMY OCT08-
1733
LAPAROSCOPIC RIGHT HEMICOLECTOMY OCT08-
1734
LAPAROSCOPIC RESECTION OF TRANSVERSE COLON OCT08-
1735
LAPAROSCOPIC LEFT HEMICOLECTOMY OCT08-
1736
LAPAROSCOPIC SIGMOIDECTOMY OCT08-
1739
OTHER LAPAROSCOPIC PARTIAL EXCISION OF LARGE INTESTINE OCT08-
3804
INCISION OF AORTA
3806
INCISION OF ABDOMINAL ARTERIES
3807
INCISION OF ABDOMINAL VEINS
3814
ENDARTERECTOMY OF AORTA
3816
ENDARTERECTOMY OF ABDOMINAL ARTERIES
3834
RESECTION OF AORTA W/ ANASTOMOSIS
3836

P☐ M☐ N☐

RESECTION OF ABDOMINAL ARTERIES W/ ANASTOMOSIS
3837
RESECTION OF ABDOMINAL VEINS W/ ANASTOMOSIS
3844
RESECTION OF AORTA, ABDOMINAL W/ REPLACEMENT
3846
RESECTION OF ABDOMINAL ARTERIES W/ REPLACEMENT
3847
RESECTION OF ABDOMINAL VEINS W/ REPLACEMENT
3857
LIGATION AND STRIPPING OF VARICOSE VEINS, ABDOMINAL VEINS
3864
OTHER EXCISION OF AORTA, ABDOMINAL
3866
OTHER EXCISION OF ABDOMINAL ARTERIES
3867
OTHER EXCISION OF ABDOMINAL VEINS
3884
OTHER SURGICAL OCCLUSION OF AORTA, ABDOMINAL
3886
OTHER SURGICAL OCCLUSION OF ABDOMINAL ARTERIES
3887
OTHER SURGICAL OCCLUSION OF ABDOMINAL VEINS
391
INTRA-ABDOMINAL VENOUS SHUNT
3924
AORTA-RENAL BYPASS
3925
AORTA-ILIAC-FEMORAL BYPASS
3926
OTHER INTRA-ABDOMINAL VASCULAR SHUNT OR BYPASS
4052
RADICAL EXCISION OF PERIAORTIC LYMPH NODES
AHRQ Quality Indicators Web Site: http://www.qualityindicators.ahrq.gov
Patient Safety Indicators Technical Specifications Version 4.2 – 2010
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4053
RADICAL EXCISION OF ILIAC LYMPH NODES
412
SPLENOTOMY
4133
OPEN BIOPSY OF SPLEEN
4141
MARSUPIALIZATION OF SPLENIC CYST
4142
EXCISION OF LESION OR TISSUE OF SPLEEN
4143
PARTIAL SPLENECTOMY
415
TOTAL SPLENECTOMY
4193
EXCISION OF ACCESSORY SPLEEN
4194
TRANSPLANTATION OF SPLEEN
4195
REPAIR AND PLASTIC OPERATIONS ON SPLEEN
4199
OTHER OPERATIONS ON SPLEEN

4240
ESOPHAGECTOMY, NOS
4241
PARTIAL ESOPHAGECTOMY
4242
TOTAL ESOPHAGECTOMY
4253
INTRATHORACIC ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION OF SMALL BOWEL
4254
OTHER INTRATHORACIC ESOPHAGOENTEROSTOMY
4255
INTRATHORACIC ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION OF COLON
4256
OTHER INTRATHORACIC ESOPHAGOCOLOSTOMY
4263
ANTESTERNAL ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION OF SMALL BOWEL
4264
OTHER ANTESTERNAL ESOPHAGOENTEROSTOMY
4265
ANTESTERNAL ESOPHAGEAL ANASTOMOSIS W/ INTERPOSITION OF COLON
4266
OTHER ANTESTERNAL ESOPHAGOCOLOSTOMY
4291
LIGATION OF ESOPHAGEAL VARICES
430
GASTROTOMY
433
PYLOROMYOTOMY
4342
LOCAL EXCISION OF OTHER LESION OR TISSUE OF STOMACH
4349
OTHER DESTRUCTION OF LESION OR TISSUE OF STOMACH
435
PARTIAL GASTRECTOMY W/ ANASTOMOSIS TO ESOPHAGUS
436
PARTIAL GASTRECTOMY W/ ANASTOMOSIS TO DUODENUM
437
PARTIAL GASTRECTOMY W/ ANASTOMOSIS TO JEJUNUM
4381
PARTIAL GASTRECTOMY W/ JEJUNA TRANSPOSITION
4389
OTHER PARTIAL GASTRECTOMY
4391
TOTAL GASTRECTOMY W/ INTESTINAL INTERPOSITION
4399
OTHER TOTAL GASTRECTOMY
4400
VAGOTOMY, NOS
4401
TRUNCAL VAGOTOMY
4402
HIGHLY SELECTIVE VAGOTOMY
4403
OTHER SELECTIVE VAGOTOMY
4411
TRANSABDOMINAL GASTROSCOPY
4415
OPEN BIOPSY OF STOMACH

4421
DILATION OF PYLORUS BY INCISION
4429
OTHER PYLOROPLASTY
4431
HIGH GASTRIC BYPASS
4439
OTHER GASTROENTEROSTOMY
4440
SUTURE OF PEPTIC ULCER, NOS
4441
SUTURE OF GASTRIC ULCER SITE
4442
SUTURE OF DUODENAL ULCER SITE
445
REVISION OF GASTRIC ANASTOMOSIS
4461
SUTURE OF LACERATION OF STOMACH
4463
CLOSURE OF OTHER GASTRIC FISTULA
4464
GASTROPEXY
4465
ESOPHAGOGASTROPLASTY
4466
OTHER PROCEDURES FOR CREATION OF ESOPHAGOGASTRIC SPHINCTERIC COMPETENCE
4469
OTHER REPAIR OF STOMACH
4491
LIGATION OF GASTRIC VARICES
4492
INTRAOPERATIVE MANIPULATION OF STOMACH
4499
GASTRIC OPERATION NEC OCT04-
4500
INCISION OF INTESTINE, NOS
4501
INCISION OF DUODENUM
4502
OTHER INCISION OF SMALL INTESTINE
4503
INCISION OF LARGE INTESTINE
4531
OTHER LOCAL EXCISION OF LESION OF DUODENUM
4532
OTHER DESTRUCTION OF LESION OF DUODENUM
4533
LOCAL EXCISION OF LESION OR TISSUE OF SMALL INTESTINE, EXCEPT DUODENUM
4534
OTHER DESTRUCTION OF LESION OF SMALL INTESTINE, EXCEPT DUODENUM
4541
EXCISION OF LESION OR TISSUE OF LARGE INTESTINE
4549
OTHER DESTRUCTION OF LESION OF LARGE INTESTINE
4550
ISOLATION OF INTESTINAL SEGMENT, NOS
4551
ISOLATION OF SEGMENT OF SMALL INTESTINE

4552
ISOLATION OF SEGMENT OF LARGE INTESTINE
4561
MULTIPLE SEGMENTAL RESECTION OF SMALL INTESTINE
4562
OTHER PARTIAL RESECTION OF SMALL INTESTINE
4563
TOTAL REMOVAL OF SMALL INTESTINE
4571
MULTIPLE SEGMENTAL RESECTION OF LARGE INTESTINE
4572
CESECTOMY
4573
RIGHT HEMICOLECTOMY
4574
RESECTION OF TRANSVERSE COLON
4575
LEFT HEMICOLECTOMY
4576
SIGMOIDECTOMY
4579
OTHER PARTIAL EXCISION OF LARGE INTESTINE
458
TOTAL INTRA-ABDOMINAL COLECTOMY
4581
LAPAROSCOPIC TOTAL INTRA-ABDOMINAL COLECTOMY OCT08-
4582
OPEN TOTAL INTRA-ABDOMINAL COLECTOMY OCT08-
4583
OTHER AND UNSPECIFIED TOTAL INTRA-ABDOMINAL COLECTOMY OCT08-
4590
INTESTINAL ANASTOMOSIS, NOS
4591
SMALL-TO-SMALL INTESTINAL ANASTOMOSIS
4592
ANASTOMOSIS OF SMALL INTESTINE TO RECTAL STUMP
4593
OTHER SMALL-TO-LARGE INTESTINAL ANASTOMOSIS
4594
LARGE-TO-LARGE INTESTINAL ANASTOMOSIS
4595
ANASTOMOSIS TO ANUS
4601
EXTERIORIZATION OF SMALL INTESTINE
4603
EXTERIORIZATION OF LARGE INTESTINE
4610
COLOSTOMY, NOS
4611
TEMPORARY COLOSTOMY
4613
PERMANENT COLOSTOMY
4620
ILEOSTOMY, NOS
4621
TEMPORARY ILESOSTOMY
4622
CONTINENT ILEOSTOMY

4623
OTHER PERMANENT ILEOSTOMY
4640
REVISION OF INTESTINA STOMA, NOS
4641
REVISION OF STOMA OF SMALL INTESTINE
4642
REPAIR OF PERICOLOSTOMY HERNIA
4643
OTHER REVISION OF STOMA OF LARGE INTESTINE
4650
CLOSURE OF INTESTINAL STOMA, NOS
4651
CLOSURE OF STOMA OF SMALL INTESTINE
4652
CLOSURE OF STOMA OF LARGE INTESTINE
4660
FIXATION OF INTESTINE, NOS
4661
FIXATION OF SMALL INTESTINE TO ABDOMINAL WALL
4662
OTHER FIXATION OF SMALL INTESTINE
4663
FIXATION OF LARGE INTESTINE TO ABDOMINAL WALL
4664
OTHER FIXATION OF LARGE INTESTINE
4672
CLOSURE OF FISTULA OF DUODENUM
4674
CLOSURE OF FISTULA OF SMALL INTESTINE, EXCEPT DUODENUM
4676
CLOSURE OF FISTULA OF LARGE INTESTINE
4680
INTRA-ABDOMINAL MANIPULATION OF INTESTINE, NOS
4681
INTRA-ABDOMINAL MANIPULATION OF SMALL INTESTINE
4682
INTRA-ABDOMINAL MANIPULATION OF LARGE INTESTINE
4691
MYOTOMY OF SIGMOID COLON
4692
MYOTOMY OF OTHER PARTS OF COLON
4693
REVISION OF ANASTOMOSIS OF SMALL INTESTINE
4694
REVISION OF ANASTOMOSIS OF LARGE INTESTINE
4699
OTHER OPERATIONS ON INTESTINES
4709
OTHER APPENDECTOMY
4719
OTHER INCIDENTAL APPENDECTOMY
472
DRAINAGE OF APPENDICEAL ABSCESS
4791
APPENDECTOMY
4792
CLOSURE OF APPENDICEAL FISTULA

4799
OTHER OPERATIONS ON APPENDIX, OTHER
4840
PULL-THROUGH RESECTION OF RECTUM, NOT OTHERWISE SPECIFIED OCT08-
4841
SUBMUCOSAL RESECTION OF RECTUM
4843
OPEN PULL-THROUGH RESECTION OF RECTUM OCT08-
4849
OTHER PULL-THROUGH RESECTION OF RECTUM
4850
ABDOMINOPERINEAL RESECTION OF THE RECTUM, NOS OCT08-
4852
OPEN ABDOMINOPERINEAL RESECTION OF THE RECTUM OCT08-
4859
OTHER ABDOMINOPERINEAL RESECTION OF THE RECTUM OCT08-
4875
ABDOMINAL PROCTOPEXY
500
HEPATOTOMY
5012
OPEN BIOPSY OF LIVER
5021
MARSUPIALIZATION OF LESION OF LIVER
5022
PARTIAL HEPATECTOMY
5023
OPN ABLTN LIVER LES/TISS OCT06-
5026
ABLTN LIVER LES/TISS NEC OCT06-
5029
OTHER DESTRUCTION OF LESION OF LIVER
503
LOBECTOMY OF LIVER
504
TOTAL HEPATECTOMY
5051
AUXILIARY LIVER TRANSPLANT
5059
OTHER TRANSPLANT OF LIVER
5069
OTHER REPAIR OF LIVER
5103
OTHER CHOLECYSTOSTOMY
5104
OTHER CHOLECYSTOTOMY
5113
OPEN BIOPSY OF GALLBLADDER OR BILE DUCTS
5121
OTHER PARTIAL CHOLECYSTECTOMY
5122
CHOLECYSTECTOMY
5131
ANASTOMOSIS OF GALLBLADDER TO HEPATIC DUCTS
5132
ANASTOMOSIS OF GALLBLADDER TO INTESTINE
5133
ANASTOMOSIS OF GALLBLADDER TO PANCREAS

5134
ANASTOMOSIS OF GALLBLADDER TO STOMACH
5135
OTHER GALLBLADDER ANASTOMOSIS
5136
CHOLEDOCHOENTEROSTOMY
5137
ANASTOMOSIS OF HEPATIC DUCT TO GASTROINTESTINAL TRACT
5139
OTHER BILE DUCT ANASTOMOSIS
5141
COMMON DUCT EXPLORATION FOR REMOVAL OF CALCULUS
5142
COMMON DUCT EXPLORATION FOR RELIEF OF OTHER OBSTRUCTION
5143
INSERTION OF CHOLEDOCHOHEPATIC TUBE FOR DECOMPRESSION
5149
INCISION OF OTHER BILE DUCTS FOR RELIEF OF OBSTRUCTION
5151
EXPLORATION OF COMMON DUCT
5159
INCISION OF OTHER BILE DUCT
5161
EXCISION OF CYSTIC DUCT REMNANT
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5162
EXCISION OF AMPULLA OF VATER W/ REIMPLANTATION OF COMMON DUCT
5163
OTHER EXCISION OF COMMON DUCT
5169
EXCISION OF OTHER BILE DUCT
5171
SIMPLE SUTURE OF COMMON BILE DUCT
5172
CHOLEDOCHOPLASTY
5179
REPAIR OF OTHER BILE DUCTS
5181
DILATION OF SPHINCTER OF ODDI
5182
PANCREATIC SPHINCTEROTOMY
5183
PANCREATIC SPHINCTEROPLASTY
5189
OTHER OPERATIONS ON SPHINCTER OF ODDI
5192
CLOSURE OF CHOLECYSTOSTOMY
5193
CLOSURE OF OTHER BILIARY FISTULA
5194
REVISION OF ANASTOMOSIS OF BILIARY TRACT
5195
REMOVAL OF PROSTHETIC DEVICE FROM BILE DUCT
5199
OTHER OPERATIONS ON BILIARY TRACT
5201

DRAINAGE OF PANCREATIC CYST BY CATHETER
5209
OTHER PANCREATOTOMY
5212
OPEN BIOPSY OF PANCREAS
5222
OTHER EXCISION OR DESTRUCTION OF LESION OR TISSUE OF PANCREAS OR PANCREATIC DUCT
523
MARSUPIALIZATION OF PANCREATIC CYST
524
INTERNAL DRAINAGE OF PANCREATIC CYST
5251
PROXIMAL PANCREATECTOMY
5252
DISTAL PANCREATECTOMY
5253
RADICAL SUBTOTAL PANCREATECTOMY
5259
OTHER PARTIAL PANCREATECTOMY
526
TOTAL PANCREATECTOMY
527
RADICAL PANCREATICODUODENECTOMY
5280
PANCREATIC TRANSPLANT, NOS
5281
REIMPLANTATION
5282
HOMOTRANSPLANT OF PANCREAS
5283
HETEROTRANSPLANT OF PANCREAS
5292
CANNULATION OF PANCREATIC DUCT
5295
OTHER REPAIR OF PANCREAS
5296
ANASTOMOSIS OF PANCREAS
5299
OTHER OPERATIONS ON PANCREAS
5300
UNILATERAL REPAIR OF INGUINAL HERNIA, NOS
5301
REPAIR OF DIRECT INGUINAL HERNIA
5302
REPAIR OF INDIRECT INGUINAL HERNIA
5303
REPAIR OF DIRECT INGUINAL HERNIA W/ GRAFT OR PROSTHESIS
5304
REPAIR OF INDIRECT INGUINAL HERNIA W/ GRAFT OR PROSTHESIS
5305
REPAIR OF INGUINAL HERNIA W/ GRAFT OR PROSTHESIS, NOS
5310
BILATERAL REPAIR OF INGUINAL HERNIA, NOS
5311
BILATERAL REPAIR OF DIRECT INGUINAL HERNIA
5312
BILATERAL REPAIR OF INDIRECT INGUINAL HERNIA
5313

BILATERAL REPAIR OF INGUINAL HERNIA, ONE DIRECT AND ONE INDIRECT
5314
BILATERAL REPAIR OF DIRECT INGUINAL HERNIA W/ GRAFT OR PROSTHESIS
5315
BILATERAL REPAIR OF INDIRECT INGUINAL HERNIA W/ GRAFT OR PROSTHESIS
5316
BILATERAL REPAIR OF INGUINAL HERNIA, ONE DIRECT AND ONE INDIRECT, W/ GRAFT OR PROSTHESIS
5317
BILATERAL INGUINAL HERNIA REPAIR W/ GRAFT OR PROSTHESIS, NOS
5321
UNILATERAL REPAIR OF FEMORAL HERNIA
5329
OTHER UNILATERAL FEMORAL HERNIORRHAPHY
5331
BILATERAL REPAIR OF FEMORAL HERNIA W/ GRAFT OR PROSTHESIS
5339
OTHER BILATERAL FEMORAL HERNIORRHAPHY
5341
REPAIR OF UMBILICAL HERNIA W/ PROSTHESIS
5349
OTHER UMBILICAL HERNIORRHAPHY
5351
INCISIONAL HERNIA REPAIR
5359
REPAIR OF OTHER HERNIA OF ANTERIOR ABDOMINAL WALL
5361
INCISIONAL HERNIA REPAIR W/ PROSTHESIS
5369
REPAIR OF OTHER HERNIA OF ANTERIOR ABDOMINAL WALL W/ PROSTHESIS
537
REPAIR OF DIAPHRAGMATIC HERNIA, ABDOMINAL APPROACH
5375
REPAIR OF DIAPHRAGMATIC HERNIA, ABDOMINAL APPROACH, NOS OCT08-
540
INCISION OF ABDOMINAL WALL
5411
EXPLORATORY LAPAROTOMY
5419
OTHER LAPAROTOMY
5422
BIOPSY OF ABDOMINAL WALL OR UMBILICUS
5423
BIOPSY OF ABDOMINAL WALL OR UMBILICUS
543
EXCISION OR DESTRUCTION OF LESION OR TISSUE OF ABDOMINAL WALL OR UMBILICUS
544
EXCISION OR DESTRUCTION OF PERITONEAL TISSUE
5459
OTHER LYSIS OF PERITONEAL ADHESIONS
5463
OTHER SUTURE OF ABDOMINAL WALL
5464
SUTURE OF PERITONEUM
5471
REPAIR OF GASTROSCHISIS
5472
OTHER REPAIR OF ABDOMINAL WALLS
5473

OTHER REPAIR OF PERITONEUM
5474
OTHER REPAIR OF OMENTUM
5475
OTHER REPAIR OF MESENTERY
5492
REMOVAL OF FOREIGN BODY FROM PERITONEAL CAVITY
5493
CREATION OF CUTANEOPERITONEAL FISTULA
5494
CREATION OF PERITONEOVASCULAR SHUNT
5495
INCISION OF PERITONEUM
5532
OPN ABLTN RENAL LES/TISS OCT06-
5535
ABLTN RENAL LES/TISS NEC OCT06-
5551
NEPHROURETERECTOMY
5552
NEPHRECTOMY OF REMAINING KIDNEY
5553
REMOVAL OF TRANSPLANTED OR REGECTED KIDNEY
5554
BILATERAL NEPHRECTOMY
5561
RENAL AUTOTRANSPLANTATION
5569
OTHER KIDNEY TRANSPLANTATION
557
NEPHROPEXY
5583
CLOSURE OF OTHER FISTULA OF KIDNEY
5584
REDUCTION OF TORSION OF RENAL
5585
SYMPHYSIOTOMY FOR HORESHOE KIDNEY
5586
ANASTOMOSIS OF KIDNEY
5587
CORRECTION OF URETEROPELVIC JUNCTION
5591
DECAPSULATION OF KIDNEY
5597
IMPLANTATION OR REPLACEMENT OF MECHANICAL KIDNEY
5598
REMOVAL OF MECHANICAL KIDNEY
5651
FORMATION OF CUTANEOUS URETERO-ILEOSTOMY
5652
REVISION OF CUTANEOUS URETERO-ILEOSTOMY
5661
FORMATION OF OTHER CUTANEOUS URETEROSTOMY
5662
REVISION OF OTHER CUTANEOUS URETEROSTOMY
5671
URINARY DIVERSION TO INTESTINE
5672

REVISION OF URETEROINTESTINAL ANASTOMOSIS
5673
NEPHROCYSTANASTOMOSIS, NOS
5674
URETERONEOXYSTOSTOMY
5675
TRANSURETEROURETEROSTOMY
5683
CLOSURE OF URETEROSTOMY
5684
CLOSURE OF OTHER FISTULA OF URETER
5685
URETEROPEXY
5686
REMOVAL OF LIGATURE FROM URETER
5689
OTHER REPAIR OF URETER
5695
LIGATION OF URETER
5771
RADICAL CYSTECTOMY
5779
OTHER TOTAL CYSTECTOMY
5782
CLOSURE OF CYSTOSTOMY
5787
RECONSTRUCTION OF URINARY BLADDER
5900
RETROPERITONEAL DISSECTION, NOS
5902
OTHER LYSIS OF PERIRENAL OR PERIURETERAL ADHESIONS
5909
OTHER INCISION OF PERIRENAL OR PERIURETERAL TISSUE
6012
OPEN BIOPSY OF PROSTATE
6014
OPEN BIOPSY OF SEMINAL VESICLES
6015
BIOPSY OF PERIPROSTATIC TISSUE
603
SUPRAPUBIC PROSTATECTOMY
604
RETROPUBIC PROSTATECTOMY
605
RADICAL PROSTATECTOMY
6061
LOCAL EXCISION OF LESION OF PROSTATE
6072
INCISION OF SEMINAL VESICLE
6073
EXCISION OF SEMINAL VESICLE
6079
OTHER OPERATIONS ON SEMINAL VESICLES
6093
REPAIR OF PROSTATE
6509
OTHER OOPHORECTOMY
6512

OTHER BIOPSY OF OVARY
6521
MARSUPIALIZATION OF OVARIAN CYST
6522
WEDGE RESECTION OF OVARY
6529
OTHER LOCAL EXCISION OR DESTRUCTION OF OVARY
6539
OTHER UNLILATERAL OOPHORECTOMY
6549
OTHER UNILATERAL SALPINGOOPHORECTOMY
6551
OTHER REMOVAL OF BOTH OVARIES AT SAME OPERATIVE EPISODE
6552
OTHER REMOVAL OF REMAINING OVARY
6561
OTHER REMOVAL OF BOTH OVARIES AND TUBES AT SAME OPERATIVE EPISODE
6562
OTHER REMOVAL OF REMAINING OVARY AND TUBE
6571
OTHER SIMPLE SUTURE OF OVARY
6572
OTHER REIMPLANTATION OF OVARY
6573
OTHER SALPINGO OOPHOROPLASTY
6579
OTHER REPAIR OF OVARY
6589
OTHER LYSIS OF ADHESIONS OF OVARY AND FALLOPIAN TUBE
6592
TRANSPLANTATION OF OVARY
6593
MANUAL RUPTURE OF OVARIAN CYST
6594
OVARIAN DENERVATION
6595
RELEASE OF TORSION OF OVARY
6599
OTHER OPERATIONS ON OVARY
6601
SALPINGOTOMY
6602
SALPINGOSTOMY
6631
OTHER BILATERAL LIGATION AND CRUSHING OF FALLOPIAN TUBES
6632
OTHER BILATERAL LIGATION AND DIVISION OF FALLOPIAN TUBES
6639
OTHER BILATERAL DESTRUCTION OR OCCLUSION OF FALLOPIAN TUBES
664
TOTAL UNILATERAL SALPINGECTOMY
6651
REMOVAL OF BOTH FALLOPIAN TUBES AT SAME OPERATIVE EPISODE
6652
REMOVAL OF REMAINING FALLOPIAN TUBE
6661
EXCISION OR DESTRUCTION OF LESION OF FALLOPIAN TUBE
6662

SALPINGECTOMY W/ REMOVAL OF TUBAL PREGNANCY
6663
BILATERAL PARTIAL SALPINGECTOMY, NOS
6669
OTHER PARTIAL SALPINGECTOMY
6671
SIMPLE SUTURE OF FALLOPIAN TUBE
6672
SALPINGO-OOPHOROSTOMY
6673
SALPINGO-SALPINGOSTOMY
6674
SALPINGO-UTEROSTOMY
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6679
OTHER REPAIR OF FALLOPIAN TUBE
6692
UNILATERAL DESTRUCTION OR OCCLUSION OF FALLOPIAN TUBE
6697
BURYING OF FIMBRIAE IN UTERINE WALL
680
OTHER INCISION AND EXCISION OF UTERUS
6813
OPEN BIOPSY OF UTERUS
6814
OPEN BIOPSY OF UTERINE LIGAMENTS
683
SUBTOTAL ABDOMINAL HYSTERECTOMY
6839
OTHER SUBTOTAL ABDOMINAL HYSTERECTOMY
684
TOTAL ABDOMINAL HYSTERECTOMY
6841
LAP TOTAL ABDOMINAL HYST OCT06-
6849
TOTAL ABD HYST NEC/NOS OCT06-
686
RADICAL ABDOMINAL HYSTERECTOMY
688
PELVIC EVISCERATION
6861
LAP RADICAL ABDOMNL HYST OCT06-
6869
RADICAL ABD HYST NEC/NOS OCT06-
6922
OTHER UTERINE SUSPENSION
693
PARACERVICAL UTERINE DENERVATION
6941
SUTURE OF LACERATION OF UTERUS
6942
CLOSURE OF FISTULA OF UTERUS
6949
OTHER REPAIR OF UTERUS

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population*): 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).

2a.10 **Denominator Exclusion Details (***All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
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).

ICD-9-CM Immunocompromised States diagnosis codes:
042
HUMAN IMMUNODEFICIENCY VIRUS DISEASE
1363
PNEUMOCYSTOSIS
1992
MALIGNANT NEOPLASM ASSOCIATED WITH TRANSPLANTED ORGAN OCT08-
23877
NEOPLASM OF UNCERTAIN BEHAVIOR, POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDER (PTLD) OCT08-
23879
NEOPLASM OF UNCERTAIN BEHAVIOR, OTHER LYMPHATIC AND HEMATOPOIETIC TISSUES OCT08-
260
KWASHIORKOR OCT05-
261
NUTRITIONAL MARASMUS OCT05-
262
OTH SEVERE MALNUTRITION OCT05-
23873
HI GRDE MYELODYS SYN LES OCT06-
23876
MYELOFI W MYELO METAPLAS OCT06
27900
HYPOGAMMAGLOBULINEM NOS
27901
SELECTIVE IGA IMMUNODEF
27902
SELECTIVE IGM IMMUNODEF
27903
SELECTIVE IG DEFIC NEC
27904
CONG HYPOGAMMAGLOBULINEM
27905
IMMUNODEFIC W HYPER-IGM
27906
COMMON VARIABL IMMUNODEF
27909
HUMORAL IMMUNITY DEF NEC
27910
IMMUNDEF T-CELL DEF NOS

27911
DIGEORGES SYNDROME
27912
WISKOTT-ALDRICH SYNDROME
27913
NEZELOFS SYNDROME
27919
DEFIC CELL IMMUNITY NOS
27941
AUTOIMMUNE LYMPHOPROLIFERATIVE SYNDROME ALPS OCT09-
27949
AUTOIMMUNE DISEASE, NOT ELSEWHERE CLASSIFIED OCT09-
27950
GRAFT-VERSUS-HOST DISEASE UNSPECIFIED OCT08-
27951
ACUTE GRAFT-VERSUS-HOST DISEASE OCT08-
27952
CHRONIC GRAFT-VERSUS-HOST DISEASE OCT08-
27953
ACUTE ON CHRONIC GRAFT-VERSUS-HOST DISEASE OCT08-
2792
COMBINED IMMUNITY DEFICIENCY
2793
UNSPECIFIED IMMUNITY DEFICIENCY
2794
AUTOIMMUNE DISEASE, NOT ELSEWHERE CLASSIFIED
2798
OTHER SPECIFIED DISORDERS INVOLVING THE IMMUNE MECHANISM
2799
UNSPECIFIED DISORDER OF IMMUNE MECHANISM
28409
CONST APLASTC ANEMIA NEC OCT06-
2841
PANCYTOPENIA OCT06-
2880
AGRANULOCYTOSIS OCT05-
28800
NEUTROPENIA NOS OCT06-
042
HUMAN IMMUNODEFICIENCY VIRUS DISEASE
1363
PNEUMOCYSTOSIS
1992
MALIGNANT NEOPLASM ASSOCIATED WITH TRANSPLANTED ORGAN OCT08-
23877
NEOPLASM OF UNCERTAIN BEHAVIOR, POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDER (PTLD) OCT08-
23879
NEOPLASM OF UNCERTAIN BEHAVIOR, OTHER LYMPHATIC AND HEMATOPOIETIC TISSUES OCT08-
260
KWASHIORKOR OCT05-
261
NUTRITIONAL MARASMUS OCT05-
262
OTH SEVERE MALNUTRITION OCT05-
23873
HI GRDE MYELODYS SYN LES OCT06-
23876
MYELOFI W MYELO METAPLAS OCT06

27900
HYPOGAMMAGLOBULINEM NOS
27901
SELECTIVE IGA IMMUNODEF
27902
SELECTIVE IGM IMMUNODEF
27903
SELECTIVE IG DEFIC NEC
27904
CONG HYPOGAMMAGLOBULINEM
27905
IMMUNODEFIC W HYPER-IGM
27906
COMMON VARIABL IMMUNODEF
27909
HUMORAL IMMUNITY DEF NEC
27910
IMMUNDEF T-CELL DEF NOS
27911
DIGEORGES SYNDROME
27912
WISKOTT-ALDRICH SYNDROME
27913
NEZELOFS SYNDROME
27919
DEFIC CELL IMMUNITY NOS
27941
AUTOIMMUNE LYMPHOPROLIFERATIVE SYNDROME ALPS OCT09-
27949
AUTOIMMUNE DISEASE, NOT ELSEWHERE CLASSIFIED OCT09-
27950
GRAFT-VERSUS-HOST DISEASE UNSPECIFIED OCT08-
27951
ACUTE GRAFT-VERSUS-HOST DISEASE OCT08-
27952
CHRONIC GRAFT-VERSUS-HOST DISEASE OCT08-
27953
ACUTE ON CHRONIC GRAFT-VERSUS-HOST DISEASE OCT08-
2792
COMBINED IMMUNITY DEFICIENCY
2793
UNSPECIFIED IMMUNITY DEFICIENCY
2794
AUTOIMMUNE DISEASE, NOT ELSEWHERE CLASSIFIED
2798
OTHER SPECIFIED DISORDERS INVOLVING THE IMMUNE MECHANISM
2799
UNSPECIFIED DISORDER OF IMMUNE MECHANISM
28409
CONST APLASTC ANEMIA NEC OCT06-
2841
PANCYTOPENIA OCT06-
2880
AGRANULOCYTOSIS OCT05-
28800
NEUTROPENIA NOS OCT06-

ICD-9-CM Immunocompromised States procedure codes:

0018
INFUS IMMUNOSUP ANTIBODY
335
LUNG TRANSPLANT
3350
LUNG TRANSPLANT NOS
3351
UNILAT LUNG TRANSPLANT
3352
BILAT LUNG TRANSPLANT
336
COMBINED HEART-LUNG TRANSPLANTATION
375
HEART TRANSPLANTATION
3751
HEART TRANSPLANTATION
410
OPERATIONS ON BONE MAROW AND SPLEEN
4100
BONE MARROW TRNSPLNT NOS
4101
AUTO BONE MT W/O PURG
4102
ALO BONE MARROW TRNSPLNT
4103
ALLOGRFT BONE MARROW NOS
4104
AUTO HEM STEM CT W/O PUR
4105
ALLO HEM STEM CT W/O PUR
4106
CORD BLD STEM CELL TRANS
4107
AUTO HEM STEM CT W PURG
4108
ALLO HEM STEM CT W PURG
4109
AUTO BONE MT W PURGING
5051
AUXILIARY LIVER TRANSPL
5059
LIVER TRANSPLANT NEC
5280
PANCREATIC TRANSPLANT, NOS
5281
REIMPLANTATION OF PANCREATIC TISSUE
5282
REIMPLANTATION OF PANCREATIC TISSUE
5283
HETEROTRANSPLANT OF PANCREAS
5285
ALLOTRANSPLANTATION OF CELLS OF ISLETS OF LNGERHANS
5286
TRANSPLANTATION OF CELLS OF ISLETS OF LANGERHANS, NOS
5569
OTHER KIDNEY TRANSPLANTATION

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**

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.

2a.12-13 Risk Adjustment Type: Risk adjustment method widely or commercially available

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
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.

2a.15-17 Detailed risk model available Web page URL or attachment: URL None
http://qualityindicators.ahrq.gov/downloads/pd/PDI_Risk_Adjustment_Tables_(Version_4_2).pdf

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Lower score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
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/PDI_download.htm

2a.22 Describe the method for discriminating performance *(e.g., significance testing)***:**
Significance testing is not prescribed by the software. Users may calculate a confidence interval for the risk-adjusted rates and a posterior probability interval for the smoothed rates at a 95% or 99% level. Users may define the relevant benchmark and the methods of discriminating performance according to their application.

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
Not applicable

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested***)**
Electronic administrative data/claims

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
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.

2a.26-28 Data source/data collection instrument reference web page URL or attachment: URL None
http://www.qualityindicators.ahrq.gov/software.htm

2a.29-31 Data dictionary/code table web page URL or attachment: URL None

http://www.qualityindicators.ahrq.gov/downloads/winqi/AHRQ_QI_Windows_Software_Documentation_V41a.pdf

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)
Clinicians: Physicians (MD/DO)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)*: The PSIs were applied to all acute inpatient hospitalizations at Veterans Health Administration (VA) facilities in fiscal 2001. [2]

2b.2 Analytic Method *(type of reliability & rationale, method for testing)*:
AHRQ PSI's applied to 5,000 non-federal hospitals. [1]

Two methods-regression analysis and multivariable case matching- were used independently to control for patient and facility characteristics while predicting the effect of the PSI on each outcome. [2]

We used propensity score matching and multivariate regression analyses to predict expenditures and outcomes attributable to the 14 PSIs. [5]

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
The authors found statistically significant ($p < .0001$) excess mortality, LOS, and cost in all groups with PSIs. The three PSIs that occurred least often-- dehiscence (disruption of the wound) were associated with the greatest excess mortality, LOS, and cost. [2]

References
[2] Rivard PE, Luther SL, Christiansen CL, Shibei Zhao, Loveland S, Elixhauser A, Romano PS, Rosen AK. Using patient safety indicators to estimate the impact of potential adverse events on outcomes. Med Care Res Rev. 2008 Feb;65(1):67-87. PMID: 18184870.

2b C☐ P☐ M☐ N☐

2c. Validity testing

2c.1 Data/sample *(description of data/sample and size)*: We carried out a retrospective cross-sectional study on all hospital inpatients discharged in 2005 (including deaths) from the three Mayo Clinic Rochester hospitals (n = 60 599) to assess adverse events. [2]

The Agency for Healthcare Research and Quality (AHRQ) Patient Safety Indicators (PSIs) were used to identify medical injuries in 7.45 million hospital discharge abstracts from 994 acute-care hospitals across 28 states in 2000 in the AHRQ Healthcare Cost and Utilization Project Nationwide Inpatient Sample database. [3]

2c.2 Analytic Method *(type of validity & rationale, method for testing)*:
Routine hospitalization-related administrative data from seven countries were analyzed. Using algorithms adapted to the diagnosis and procedure coding systems in place in each country, authorities in each of the participating countries reported summaries of the distribution of hospital-level and overall (national) rates for each AHRQ Patient Safety Indicator to the OECD project secretariat. [1]

Adverse events were identified through multiple methods: (i) Agency for Healthcare Research and Quality-defined patient safety indicators (PSIs) using ICD-9 diagnosis codes from administrative discharge abstracts, (ii) provider-reported events, and (iii) Institute for Healthcare Improvement Global Trigger Tool with physician confirmation. PSIs were adjusted to exclude patient conditions present at admission. [2]

2c C☐ P☐ M☐ N☐

We matched each identified medical injury case with up to 4 controls from the same hospitals and with the same DRG, sex, white or nonwhite race, and age within 10 years. We further matched cases without any comorbidity with controls without any comorbidity and matched cases and controls with comorbidities within a 1% difference in risk of death due to comorbidities. The matching algorithm first selects controls that meet the matching criteria and then randomly selects 4 controls if more than 4 eligible controls are found. We also computed linear and logistic regressions to estimate excess outcomes attributable to medical injuries to provide comparisons with matching analyses. [3]

Retrospective analysis using diagnoses and procedures to derive annual rates and standard errors for 13 PSIs. For either hospitals or hospital networks (Veterans Integrated Service Networks [VISNs]), we calculated the percentages whose PSI rates were consistently high or low across years, as well as 1-year lagged correlations, for each PSI. We related our findings to the average annual number of adverse events that each PSI represents. We also assessed time trends for the entire VA, by VISN, and by hospital. [4]

Two methods-regression analysis and multivariable case matching- were used independently to control for patient and facility characteristics while predicting the effect of the PSI on each outcome. [5]

We used bivariate and multivariate techniques to examine the relationship between PSI performance and quality scores from the Hospital Quality Alliance program, risk-adjusted mortality rates, and selection as a top hospital by US News & World Report. [6]

Hospital discharges from Mayo Clinic Rochester hospitals in 2005 (N = 60,599). All hospital inpatients including surgical, medical, pediatric, maternity, psychiatric, and rehabilitation patients. About 33% of patients traveled more than 120 miles for care. [7]

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
About 4% (2401) of hospital discharges had an adverse event identified by at least one method. Around 38% (922) of identified events were provider-reported events. Nearly 43% of provider-reported adverse events were skin integrity events, 23% medication events, 21% falls, 1.8% equipment events and 37% miscellaneous events. Patients with adverse events identified by one method were not usually identified using another method. Only 97 (6.2%) of hospitalizations with a PSI also had a provider-reported event and only 10.5% of provider-reported events had a PSI. Different detection methods identified different adverse events. Discharges with PSI: PO wound dehiscence = 38; Discharges with corresponding provider-reported adverse event = 0 (0%) [2]

PSI #14 - Postoperative Wound Dehiscence: Significant differences between cases and controls in LOS, charges, and mortality (P < .001). [3]

References
[2] Naessens JM; Campbell CR; Huddleston JM; Berg PB; Lefante JJ; Williams AR; and Culbertson RA. A Comparison of Hospital Adverse Events Identified by Three Widely Used Detection Methods. International Journal for Quality in Health Care. 2009;21(4):301-307. PMID: 19617381.
[3] Zhan C, and Miller MR. Excess Length of Stay, Charges, and Mortality Attributable to Medical Injuries During Hospitalization. JAMA. 2003;290(14):1868-1874. doi: 10.1001/jama.290.14.1868.

2d. Exclusions Justified

2d.1 Summary of Evidence supporting exclusion(s):
Exclusions remove cases where the outcome of interest is less likely to be preventable or more likely to be preventable or with no or very low risk

2d.2 Citations for Evidence:
Updated citations will be presented in the May Steering Committee meeting

Measures of Pediatric Health Care Quality Based on Hospital Administrative Data, The Pediatric Quality Indicators. Ver 3.1 March 2007
http://qualityindicators.ahrq.gov/downloads/pdi/pdi_measures_v31.pdf

2d
C☐
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M☐
N☐
NA☐

2d.3 Data/sample *(description of data/sample and size)*: AHRQ 2007 State Inpatient Databases (SID) with 3,500 hospitals and 6 million pediatric discharges

2d.4 Analytic Method *(type analysis & rationale)*:
Expert panel

2d.5 Testing Results *(e.g., frequency, variability, sensitivity analyses)*:
Measures of Pediatric Health Care Quality Based on Hospital Administrative Data, The Pediatric Quality Indicators. Ver 3.1 March 2007
http://qualityindicators.ahrq.gov/downloads/pdi/pdi_measures_v31.pdf

2e. Risk Adjustment for Outcomes/ Resource Use Measures

2e.1 Data/sample *(description of data/sample and size)*: AHRQ 2007 State Inpatient Databases (SID) with 3,500 hospitals and 6 million pediatric discharges

2e.2 Analytic Method *(type of risk adjustment, analysis, & rationale)*:
Risk-adjustment models use a standard set of categories based on readily available classification systems for demographics, severity of illness and comorbidities. Within each category, covariates are initially selected based on a minimum of 30 cases in the outcome of interest. Then a stepwise regression process on a development sample is used to select a parsimonious set of covariates where p<.05. Model is then tested on a validation sample

2e.3 Testing Results *(risk model performance metrics)*:
c 0.832

2e.4 If outcome or resource use measure is not risk adjusted, provide rationale: Not applicable

2e
C☐ P☐ M☐ N☐ NA☐

2f. Identification of Meaningful Differences in Performance

2f.1 Data/sample from Testing or Current Use *(description of data/sample and size)*: AHRQ 2007 State Inpatient Databases (SID) with 3,500 hospitals and 6 million pediatric discharges

2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance *(type of analysis & rationale)*:
Posterior probability distribution parameterized using the Gamma distribution

2f.3 Provide 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)*:

5th	25th	Median	75th	95th
0.000699	0.001343	0.001981	0.002797	0.004314

2f
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2g. Comparability of Multiple Data Sources/Methods

2g.1 Data/sample *(description of data/sample and size)*: Not applicable

2g.2 Analytic Method *(type of analysis & rationale)*:
Not applicable

2g.3 Testing Results *(e.g., correlation statistics, comparison of rankings)*:
Not applicable

2g
C☐ P☐ M☐ N☐ NA☐

2h. Disparities in Care

2h.1 If measure is stratified, provide stratified results *(scores by stratified categories/cohorts)*: [1]
Although we did find overall disparities in care, we found that indicators for blacks, Hispanics, and Asians were not statistically worse than corresponding quality indicators for whites in the same hospital. Only a few hospitals provide lower quality of care to minorities than to whites.

2h
C☐ P☐ M☐ N☐ NA

References
[1] Darrell J. Gaskin, Christine S. Spencer, Patrick Richard, Gerard F. Anderson, Neil R. Powe and Thomas A. LaVeist. Do Hospitals Provide Lower-Quality Care To Minorities Than To Whites? Health Affairs, 27, no. 2 (2008): 518-527 doi: 10.1377/hlthaff.27.2.518

2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:
Users may stratify based on gender and race/ethnicity

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*

2

Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met?
Rationale:

2
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P ☐
M ☐
N ☐

3. USABILITY

Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)

Eval Rating

3a. Meaningful, Understandable, and Useful Information

3a.1 Current Use: In use

3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large) (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:**
Illinois (state)
Illinois Hospital Report Card and Consumer Guide to Health Care
http://www.healthcarereportcard.illinois.gov/

Iowa (Iowa Healthcare Collaborative)
Iowa Healthcare Collaborative
http://www.ihconline.org/aspx/publicreporting/iowareport.aspx

Kentucky (Norton Healthcare, a hospital system)
Norton Healthcare Quality Report
http://www.nortonhealthcare.com/body.cfm?id=157

Kentucky (state hospital association)
Kentucky Hospital Association Quality Data
http://info.kyha.com/QualityData/IQISite/

Louisiana (state)
Louisiana Health Finder
http://www.healthfinderla.gov/default.aspx
Maine (state)
Maine Health Data Organization
http://gateway.maine.gov/mhdo2008Monahrq/home.html

Minnesota (Minnesota Community Measurement)
Minnesota Health Scores
www.mnhealthscores.org

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New Jersey (state)
Find and Compare Quality Care in NJ Hospitals
http://www.nj.gov/health/healthcarequality/

New York (health care coalition)
New York State Hospital Report Card
http://www.myhealthfinder.com/

Oklahoma (state)
Oklahoma Hospital Report
http://www.ok.gov/health/documents/08%20Hospital%20AR.pdf

Washington (health care coalition)
Washington State Hospital Report Card
http://www.myhealthfinder.com/wa09/index.php

The measure is also reported on HCUPnet:
http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=EB57801381F71C41&Form=MAINSEL&JS=Y&Action=%3E%3ENext%3E%3E&_MAINSEL=AHRQ%20Quality%20Indicators

This measure is used in the MONAHRQ system that is provided for public reporting and quality improvement throughout the United States: http://monahrq.ahrq.gov/

3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):**
University Healthcare Consortium - An alliance of 103 academic medical centers and 219 of their affiliated hospitals. Reporting the AHRQ QIs to their member hospitals. (see www.uhc.edu. Note: measure results reported to hospitals; not reported on site).

Dallas Fort Worth Hospital Council – Reporting on measure results to over 70 hospitals in Texas (see www.dfwhc.ord. Note: measure results reported to hospitals; not reported on site).

Norton Healthcare - a multi-hospital system in Kentucky (see http://www.nortonhealthcare.com/about/Our_Performance/index.aspx)
Ministry Health Care - a multi-hospital system in Wisconsin (see http://ministryhealth.org/display/router.aspx. Note: measure results reported to hospitals; not reported on site).

Minnesota Hospital Association
http://www.mnhospitals.org/ Note: measure used in quality improvement. Not reported publicly by the association)

Premier - Premier´s "Quality Advisor" tool provides performance reports to approximately 650 hospitals for their use in monitoring and improving quality. Hospitals receive facility specific reports on this measure in Quality Advisor.

This measure is used in the MONAHRQ system that is provided for public reporting and quality improvement throughout the United States: http://monahrq.ahrq.gov/

Testing of Interpretability (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*)
3a.4 **Data/sample** *(description of data/sample and size)*: AHRQ 2007 State Inpatient Databases (SID) with 4,000 hospitals and 30 million adult discharges

3a.5 **Methods** *(e.g., focus group, survey, QI project)*:
A research team from the School of Public Affairs, Baruch College, under contracts with the Department of

Public Health, Weill Medical College and Battelle, Inc., has developed a pair of Hospital Quality Model Reports at the request of the Agency for Healthcare Research & Quality (AHRQ). These reports are designed specifically to report comparative information on hospital performance based on the AHRQ Quality Indicators (QIs). The work was done in close collaboration with AHRQ staff and the AHRQ Quality Indicators team. The Model Reports (discussed immediately above) are based on: • Extensive search and analysis of the literature on hospital quality measurement and reporting, as well as public reporting on health care quality more broadly; • Interviews with quality measurement and reporting experts, purchasers, staff of purchasing coalitions, and executives of integrated health care delivery systems who are responsible for quality in their facilities; • Two focus groups with chief medical officers of hospitals and/or systems and two focus groups with quality managers from a broad mix of hospitals; • Four focus groups with members of the public who had recently experienced a hospital admission; and • Four rounds of cognitive interviews (a total of 62 interviews) to test draft versions of the two Model Reports with members of the public with recent hospital experience, basic computer literacy but widely varying levels of education. 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)*: Given the above review of the literature and original research that was conducted, a Model report was the result that could help sponsors use the best evidence on public reports so they are most likely to have the desired effects on quality	
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:**	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?**	**3b** C☐ P☐ M☐ N☐ NA ☐
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:** No competing measure found.	**3c** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes 4a.1-2 **How are the data elements that are needed to compute measure scores generated?** Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9	**4a** C☐ P☐ M☐

codes on claims, chart abstraction for quality measure or registry)	N☐
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) Yes **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.**	**4b** C☐ P☐ M☐ N☐
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** C☐ P☐ M☐ N☐ NA ☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** Coding professionals follow detail guidelines, are subject to training and credentialing requirements, peer review and audit.	**4d** C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Coding professionals follow detail guidelines, are subject to training and credentialing requirements, peer review and audit. **4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** Administrative data are collected as part of the routine operations. Some staff time is required to download and execute the software from the AHRQ webs site, which is available at no cost. The software for calculating the measure is available for free at: http://www.qualityindicators.ahrq.gov/software.htm **4e.3 Evidence for costs:** All data necessary to calculate this measure are routinely collected for hospital administrative purposes. The software for calculating the measure is available for free at: http://www.qualityindicators.ahrq.gov/software.htm **4e.4 Business case documentation:** All data necessary to calculate this measure are routinely collected for hospital administrative purposes. The software for calculating the measure is available for free at: http://www.qualityindicators.ahrq.gov/software.htm	**4e** C☐ P☐ M☐ N☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** C☐ P☐ M☐ N☐
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited**

	☐
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y**☐ **N**☐ **A**☐

CONTACT INFORMATION

Co.1 Measure Steward (Intellectual Property Owner)
Co.1 Organization
Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, Maryland, 20850

Co.2 Point of Contact
John, Bott, MSSW, MBA, John.Bott@AHRQ.hhs.gov, 301-427-1317-

Measure Developer If different from Measure Steward
Co.3 Organization
Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, Maryland, 20850

Co.4 Point of Contact
John, Bott, MSSW, MBA, John.Bott@AHRQ.hhs.gov, 301-427-1317-

Co.5 Submitter If different from Measure Steward POC
John, Bott, MSSW, MBA, John.Bott@AHRQ.hhs.gov, 301-427-1317-, Agency for Healthcare Research and Quality

Co.6 Additional organizations that sponsored/participated in measure development
UC Davis,
Stanford University,
Battelle Memorial Institute

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
None

Ad.2 If adapted, provide name of original measure: None
Ad.3-5 If adapted, provide original specifications URL or attachment

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released: 2003
Ad.7 Month and Year of most recent revision: 10, 2010
Ad.8 What is your frequency for review/update of this measure? Annual
Ad.9 When is the next scheduled review/update for this measure? 05, 2011

Ad.10 Copyright statement/disclaimers: The AHRQ QI software is publicly available; no copyright disclaimers

Ad.11 -13 Additional Information web page URL or attachment:

Date of Submission (*MM/DD/YY*)**:** 04/05/2011

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0527 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Prophylactic antibiotic received within 1 hour prior to surgical incision
De.2 **Brief description of measure:** 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.
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure**
De.4 **National Priority Partners Priority Area:** Safety De.5 **IOM Quality Domain**: Safety De.6 **Consumer Care Need:** Staying healthy

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and	**B**

update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accountability, Payment incentive, Accreditation	C Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	D Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Frequently performed procedure, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** There are over 40 million surgeries performed in the United States each year. Surgical site infection (SSIs) are the second most common cause of healthcare associated infections.SSIs account for 14-16% of all hospital-acquired infections and are among the most common complications of care, occurring in 2 to 5% of patients after clean extra-abdominal operations and up to 20 % of intra-abdominal procedures. Among surgical patients, SSIs account for 40% of all such hospital-acquired infections. By reducing SSIs, hospitals on average could recognize a savings of $3,152 and a reduction in extended length of stay by seven days on each patient developing an infection. 1a.4 **Citations for Evidence of High Impact:** Selected References: Zhan C, Miller MR. Excess length of stay, charges and mortality attributable to medical injuries during hospitalization. JAMA 2003; 290: 1868-1874. Delgado-Rodriguez M, Sillero-Arenas M, Medina-Cuadros M, Martinez-Gallego G. Nosocomial infections in surgical patients: comparison of two measures of intrinsic patient risk. Infect Control Hosp Epidemiol 1997; 18: 19-23. Polk HC, Christmas AB. Prophylactic antibiotics in surgery and surgical wound infections. Am Surg 200; 66:	1a C☐ P☐ M☐ N☐

105-111.

1b. Opportunity for Improvement

1b.1 **Benefits (improvements in quality) envisioned by use of this measure:** An increase in the number of patients having timely antibiotic administration may reduce the incidence of surgical site infection.

1b.2 **Summary of data demonstrating performance gap (variation or overall poor performance) across providers:**
In a national sample of 39,000 Medicare patients undergoing surgery in US hospitals in 2001, the rate of surgeries that had antibiotics started within 60 minutes prior to incision was 55.7%. The rate of performance for second quarter 2010 (most recent data) was 97.1% with a denominator of 279,140 cases and a numerator of 271,088.

1b.3 **Citations for data on performance gap:**
The rate of performance for second quarter 2010 (most recent data) was 97.1% with a denominator of 279,140 and a numerator of 271,088. The # of hospitals reporting the data was 3570.

1b.4 **Summary of Data on disparities by population group:**
A disparities report is attached to this submission.

1b.5 **Citations for data on Disparities:**
The attached disparities report uses 2009 data from the clinical data warehouse.

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1c. Outcome or Evidence to Support Measure Focus

1c.1 **Relationship to Outcomes** (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** The desired outcome would be fewer surgical site infections. Since this is only one process in the care of surgery patients, it would be difficult to attribute a reduction in SSI to this one measure.

1c.2-3. **Type of Evidence:** Evidence-based guideline, Randomized controlled trial, Expert opinion

1c.4 **Summary of Evidence** (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
A goal of prophylaxis with antibiotics is to establish bactericidal tissue and serum levels at the time of skin incision. Studies performed in the 1960's and 1970's demonstrated that a common reason for failure of prophylaxis was delay of antibiotic administration until after the operation. In a study of 2,847 surgery patients at LDS Hospital in Salt Lake City, it was found that the lowest incidence of post-operative infection was associated with antibiotic administration during the one hour prior to surgery. The risk of infection increased progressively with greater time intervals between administration and skin incision. This relationship was observed whether antibiotics preceded or followed skin incision (Classen 1993).

1c.5 **Rating of strength/quality of evidence (***also provide narrative description of the rating and by whom***):**
Various, RCTs performed and evidence supporting the measures

1c.6 **Method for rating evidence:** Classes and levels
Level A: Data derived from multiple randomized clinical trials
Level B: Data derived from a single randomized trial or from nonrandomized trials
Level C: Consensus expert opinion
Classification of Recommendations
Class I: Conditions for which there is evidence and/or general agreement that a given procedure is useful and effective
Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of a procedure
IIa: Weight of evidence favors usefulness/efficacy.
IIb: Usefulness/efficacy is less well established by evidence.
Class III: Conditions for which there is evidence and/or general agreement that the procedure is not useful/effective

1c
C☐
P☐
M☐
N☐

1c.7 Summary of Controversy/Contradictory Evidence: There have been no studies that contradict the guidelines for surgical site infection prevention.

1c.8 Citations for Evidence (*other than guidelines*): Burke JF. The effective period of preventive antibiotic action in experimental
incisions and dermal lesions. Surgery 1961; 50:161–8.
Polk HC Jr, Lopez-Mayor JF. Postoperative wound infection: a prospective
study of determinant factors and prevention. Surgery 1969;
66:97–103.
Stone HH, Hooper CA, Kolb LD, Geheber CE, Dawkins EJ. Antibiotic
prophylaxis in gastric, biliary and colonic surgery. Ann Surg 1976; 184:
443–52.
Polk HC Jr, Trachtenberg L, Finn MP. Antibiotic activity in surgical
incisions: the basis for prophylaxis in selected operations. JAMA
1980; 244:1353–4.
DiPiro JT, Vallner JJ, Bowden TA, Clark BA, Sisley JF. Intraoperative
serum and tissue activity of cefazolin and cefoxitin. Arch Surg 1985;
120:829–32.
Classen DC, Evans RS, Pestotnik SL, Horn SD, Menlove RL, Burke JP.
The timing of prophylactic administration of antibiotics and the risk
of surgical-wound infection. N Engl J Med 1992; 326:281–6.
Trick WE, Scheckler WE, Tokars JL, et al. Modifiable risk factors associated
with deep sternal site infection after coronary artery bypass
grafting. J Thorac Cardiovasc Surg 2000; 119:108–14.
Burke JP. Maximizing appropriate antibiotic prophylaxis for surgical
patients: an update from LDS Hospital, Salt Lake City. Clin Infect Dis
2001; 33(Suppl 2):S78–83.
Garey KW, Dao T, Chen H, Amrutkar P, Kumar N, Reiter M, Gentry LO: Timing of vancomycin prophylaxis for cardiac surgery patients and the risk of surgical site infections.J Antimicrob Chemother 2006, 58:645-650.
VanKasteren MEE, Mannien J, Ott A, Kullberg BJ, DeBoer AS, Gyssens IC: Antibiotic prophylaxis and the risk of surgical site infections following total hip arthroplasty: Timely administration is the most important factor. Clin Infect Dis 2007, 44:921-927.
9. Bratzler DW, Houck PM: For the Surgical Infection Prevention Guideline Writers Workgroup. Antimicrobial prophylaxis for surgery: an advisory statement from the National Surgical Infection Prevention Project.
Am J Surg 2005, 189:395-404.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number*):
CDC HICPAC:Time the infusion of the initial dose of antimicrobial agent so that a bactericidal concentration of the drug is established in serum and tissues by the time the skin is incised
ASHP: At induction of anesthesia.
The Medical Letter: Parenteral prophylactic antimicrobials can be given as a single IV dose begun 60 minutes or less before the operation. If vancomycin or a fluoroquinolone is used, the infusion should be started 60-120 minutes before the initial incision in order to minimize the possibility of an infusion reaction close to the time of induction of anesthesia and to have adequate tissue levels at the time of incision.
ACOG: Only a narrow window of antimicrobial efficacy is available, requiring the administration of antibiotics either shortly before or at the time of bacterial inoculation (eg, when the incision is made, the vagina is entered, or the pedicles are clamped). The induction of anesthesia represents a convenient time (within an hour before the incision) for initiating antibiotic prophylaxis in major gynecologic procedures.
SHEA/IDSA: Administer prophylaxis within 1 hour before incision to maximize tissue concentration

1c.10 Clinical Practice Guideline Citation: - Page CP, Bohnen JM, Fletcher JR, McManus AT, Solumkin JS,Wittman
DH. Antimicrobial prophylaxis for surgical wounds: guidelines for clinical
care. Arch Surg 1993; 128:79–88.
- Dellinger EP, Gross PA, Barrett TL, et al. Quality standard for antimicrobial
prophylaxis in surgical procedures. Infectious Diseases Society

of America. Clin Infect Dis 1994; 18:422–7. - American Society of Health-System Pharmacists. ASHP therapeutic guidelines on antimicrobial prophylaxis in surgery. Am J Health Syst Pharm 1999; 56:1839–88. - Mangram AJ, Horan TC, Pearson ML, et al. Guideline for prevention of surgical site infection, 1999. Hospital Infection Control Practices Advisory Committee. Infect Control Hosp Epidemiol 1999; 20:250–78. -Antimicrobial prophylaxis in surgery. Med Lett Drugs Ther 2001; 43: 92–7. -ACOG Committee on Practice Bulletins. Antibiotic prophylaxis for gynecologic procedures. ACOG practice bulletin 104. Washington, DC: American College of Obstetricians and Gynecologists, May 2009. - Gilbert DN, Moellering RC, Sande MA. The Sanford guide to antimicrobial therapy. 40th ed. Hyde Park, VT: Antimicrobial Therapy, 2010:123–4. **1c.11 National Guideline Clearinghouse or other URL:** http://www.cdc.gov/ncidod/dhqp/pdf/guidelines/ssi.pdf **1c.12 Rating of strength of recommendation** (*also provide narrative description of the rating and by whom*)**:** Category IA **1c.13 Method for rating strength of recommendation** (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*: RANKINGS Category IA.Strongly recommended for implementation and supported by well-designed experimental, clinical, or epidemiological studies. Category IB.Strongly recommended for implementation and supported by some experimental, clinical, or epidemiological studies and strong theoretical rationale. Category II. Suggested for implementation and supported by suggestive clinical or epidemiological studies or theoretical rationale. No recommendation; unresolved issue. Practices for which insufficient evidence or no consensus regarding efficacy exists. **1c.14 Rationale for using this guideline over others:** "The Guideline for Prevention of Surgical Site Infection, 1999, provides recommendations concerning reduction of surgical site infection risk. Each recommendation is categorized on the basis of existing scientific data,theoretical rationale, and applicability." Mangram AJ, Horan TC, Pearson ML, Silver LC, Jarvis WR, the Hospital Infection Control Practices Advisory Committee. Guideline for prevention of surgical site infection 1999. Infect Control Hosp Epidemiol 1999;20:247-80.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	

S.1 Do you have a web page where current detailed measure specifications can be obtained?
S.2 If yes, provide web page URL:

2a. Precisely Specified

2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*):
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).

2a.2 Numerator Time Window (*The time period in which cases are eligible for inclusion in the numerator*):
Admission to Surgical Incision Time

2a.3 Numerator Details (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*):
Data Elements:
Anesthesia Start Date
Antibiotic Administration Date
Antibiotic Administration Time
Surgical Incision Date
Surgical Incision Time

2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured*):
All selected surgical patients with no evidence of prior infection. Table 5.10 is the complete table of selected major surgeries

2a.5 Target population gender: Female, Male
2a.6 Target population age range: Patients aged 18 and older

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator*):
admission to discharge

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions*):
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).

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population*): 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

2a-specs
C☐
P☐
M☐
N☐

Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics)

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
Data Elements:
Admission Date
Antibiotic Received
Birthdate
Clinical Trial
Discharge Date
Infection Prior to Anesthesia
Laparoscope
Oral Antibiotics
Other Surgeries

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
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.

2a.12-13 Risk Adjustment Type: No risk adjustment necessary

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion
2a.20 Interpretation of Score: Better quality = Higher score
2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps***):**
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.
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
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
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.
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.
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.

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 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

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
The SCIP Topic Population (common to all SCIP measures) is defined as patients admitted to the hospital for inpatient acute care with an ICD-9-CM Principal Procedure Code for SCIP as defined in Appendix A, Table 5.10 and a Length of Stay (Discharge Date - Admission Date) <= 120 days. There are eight distinct strata or sub-populations within the SCIP Topic Population, each identified by a specific group of procedure codes. The patients in each stratum are counted in the Initial Patient Population of multiple measures.

The following sample size tables for each option automatically build in the number of cases needed to obtain the required sample sizes.

Quarterly Sampling
For hospitals selecting sample cases for SCIP, a modified sampling procedure is required. Hospitals selecting sample cases for this set must ensure that each individual stratum's population and quarterly sample size meets the following conditions:
- Select within each of the seven individual measure stratum (e.g., colorectal surgery, hip arthroplasty, etc.) and the 8th SCIP stratum (Table 5.25 in Appendix A).

Quarterly Sample Size
Based on Initial Patient Population Size for the SCIP Measure Set

Hospital's Measure

Average Quarterly
Stratum Initial Patient Population Size
"N" Minimum Required
Stratum Sample Size
"n"
>/= 481 49
171-480 10% of Initial Patient Population size
17-170 17
< 17 No sampling; 100% Initial Patient Population required

Monthly Sampling
For hospitals selecting sample cases for SCIP, a modified sampling procedure is required. Hospitals selecting sample cases for this set must ensure that each individual strata population and monthly sample size meets the following conditions:
• Select within each of the seven individual measure stratum (e.g., colorectal surgery, hip arthroplasty, etc.) and the 8th SCIP stratum (Table 5.25 in Appendix A).

Monthly Sample Size
Based on Initial Patient Population Size for the SCIP Measure Set

Hospital's Measure
Average Monthly
Stratum Initial Patient Population Size
"N" Minimum Required
Stratum Sample Size
"n"
>/= 151 16
61-150 10% of Initial Patient Population size
6-60 6
<6 No sampling; 100% Initial Patient Population required

All of the SCIP measures´ specific exclusion criteria are used to filter out cases that do not belong in the measure denominator.

2a.24 **Data Source** (*Check the source(s) for which the measure is specified and tested)*
Paper medical record/flow-sheet, Electronic administrative data/claims, Electronic Health/Medical Record

2a.25 **Data source/data collection instrument (***Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
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

2a.26-28 **Data source/data collection instrument reference web page URL or attachment:** Attachment SCIPCARTpapertool_10.01.10-634328669255300860.doc

2a.29-31 **Data dictionary/code table web page URL or attachment:** URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228754600169

2a.32-35 **Level of Measurement/Analysis** (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency, Population: national, Program: QIO, Can be measured at all levels

2a.36-37 **Care Settings (***Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 **Clinical Services** (*Healthcare services being measured, check all that apply*)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)*: This measure is in use for the Hospital Inpatient Quality Reporting Program. For Q2 2010, the national rate was 97.1%. The number of facilities reporting: 3,570. The number of cases in the denominator: 279,140. The number of cases in the numerator: 271,088.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)*:
Measure has been in use since 2001 and has been continually collected nationally for the Hospital Inpatient Quality Reporting Program since July 2006. A predetermined number of charts are requested and submitted to an independent abstraction/validation contractor quarterly. Mismatches are calculated and reported to facilities and are used to determine eligibility for incentives. Facilities must achieve an 80% agreement with CDAC abstractors in addition to agreeing to report measure rates on Hospital Compare.

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
Measure has been in use since 2001 and has been continually collected nationally for the Hospital Inpatient Quality Reporting Program since July 2006. Feedback from the hospital abstractors and the independent validation team is collected and incorporated. Reports on mismatches between national abstractors and the independent abstraction/validation contractor are reviewed quarterly. Revisions to data elements are made accordingly. A mismatch report is developed quarterly by the Iowa QIOSC.

2b C☐ P☐ M☐ N☐

2c. Validity testing

2c.1 Data/sample *(description of data/sample and size)*: Review of relevant guidelines and studies is performed quarterly with a Technical Expert Panel. Antibiotic selection guidelines are reviewed during quarterly TEP teleconfereces. Specifications (including codes, new antibiotics and data elements) are modified every six months according to feedback provided by clinicians and hospital staff collecting data for the measure. National performance of the measure is monitored by the measure steward with quarterly benchmarks of hospital submitted data developed for distribution to QIOs. Trend reports are also prepared and reviewed. The measure is collecting the information it was designed to collect.

2c.2 Analytic Method *(type of validity & rationale, method for testing)*:
Face validity is systematically assessed by the Technical Expert Panels and the measure is judged to assess the provision of appropriate care for the target population.

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
The measure is collecting the information it was designed to collect, according to expert panel review.

2c C☐ P☐ M☐ N☐

2d. Exclusions Justified

2d.1 Summary of Evidence supporting exclusion(s):
The exclusions used in this measure are the exclusions used for all SCIP measures and are reviewed by the Technical Expert Panel as needed.

2d.2 Citations for Evidence:
NA

2d.3 Data/sample *(description of data/sample and size)*: NA

2d.4 Analytic Method *(type analysis & rationale)*:
NA

2d.5 Testing Results *(e.g., frequency, variability, sensitivity analyses)*:
NA

2d C☐ P☐ M☐ N☐ NA☐

2e. Risk Adjustment for Outcomes/ Resource Use Measures **2e.1 Data/sample** *(description of data/sample and size)*: NA **2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*: NA **2e.3 Testing Results** *(risk model performance metrics)*: NA **2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:** This is a process measure.	**2e** C☐ P☐ M☐ N☐ NA ☐
2f. Identification of Meaningful Differences in Performance **2f.1 Data/sample from Testing or Current Use** *(description of data/sample and size)*: Measure rate trends are reviewed every quarter, using a rolling 5 quarters of national hospital submitted data. **2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Analysts review quarterly benchmarks and trends to identify differences in performance scores and investigate the possible causes. If measure specifications (algorithms, data elements) are causing the difference in performance, they are reviewed for possible updates by the subject matter experts. This measure has had consistent rates of performance the last several quarters. **2f.3 Provide 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)*: A trends report is provided with this submission.	**2f** C☐ P☐ M☐ N☐
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: Currently, this measure is collected from the medical record. The medical record can be paper or an EHR. No analysis between chart-abstracted and eMeasure collection has been performed because the eMeasure specifications have not been implemented at this time. **2g.2 Analytic Method** *(type of analysis & rationale)*: NA **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*: NA	**2g** C☐ P☐ M☐ N☐ NA ☐
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: An updated disparities report has been submitted to NQF for review. Data on the range of performance values by decile for the hospital process measures was provided also. **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:** All of the inpatient quality reporting measures collect this information: Birthdate, Hispanic Ethnicity, Payment Source, Race and Sex. Additional analysis was performed to determine disparities in US region and urban vs rural.	**2h** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	***2*** **C☐** **P☐** **M☐**

	N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information 3a.1 **Current Use:** In use 3a.2 **Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** The measure is currently in use for the Hospital Inpatient Quality Reporting Program under CMS. To receive the APU from Medicare, hospitals agree to submit their data and have their measure rates reported on Hospital Compare. http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier1&cid=1121785350606 3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** This measure is also used in the accreditation process for the Joint Commission. It is part of the SCIP measure set, which facilities can choose to report for accreditation purposes. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) 3a.4 **Data/sample** *(description of data/sample and size)***:** The measures rates are reported on the website Hospital Compare. 3a.5 **Methods** *(e.g., focus group, survey, QI project)***:** Data about interpretability of reported measure rates are collected by the CMS contractor responsible for maintaining Hospital Compare. Data is collected voluntarily via survey of website users. 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)***:** NA	**3a** C☐ P☐ M☐ N☐
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:** #528 Prophylactic Antibiotic Selection for Surgical Patients and #529 Prophylactic Antibiotics Discontinued Within 24 Hours After Surgery End Time	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?** Many of the same data elements are used, as they are collected as a set under one topic.	**3b** C☐ P☐ M☐ N☐ NA ☐
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** The antibiotic prophylaxis measures are collected as a set. 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:**	**3c** C☐ P☐ M☐ N☐ NA ☐

NA	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** **C☐** **P☐** **M☐** **N☐**
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	**Eval Rating**
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** **C☐** **P☐** **M☐** **N☐**
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.** This measure has been retooled for EHRs but has not been tested.	**4b** **C☐** **P☐** **M☐** **N☐**
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** **C☐** **P☐** **M☐** **N☐** **NA** **☐**
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** Interpretation of data elements will always be a factor, since the instructions for obtaining the data are written by the measure developers. No unintended consequences have been identified with the antibiotic timing measure.	**4d** **C☐** **P☐** **M☐** **N☐**
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Specifications (including codes and data elements) are modified every six months according to feedback provided by clinicians and hospital staff collecting data for the measure. Data is available in the medical record and there are no feasibility or implementation issues identified. **4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** The cost associated with measure use is that of data collection only. Many facilities employ quality improvement staff to perform data abstraction and entry. The same employees may develop reports and provide information to clinicians and hospital administration. **4e.3 Evidence for costs:**	**4e** **C☐** **P☐** **M☐** **N☐**

No studies have been performed on the cost of implementation. 4e.4 **Business case documentation:**	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**

CONTACT INFORMATION

Co.1 **Measure Steward (Intellectual Property Owner)**
Co.1 **Organization**
Centers for Medicare & Medicaid Services, 7500 Security Boulevard , Mail Stop S3-01-02, Baltimore, Maryland, 21244-1850

Co.2 **Point of Contact**
Kristie, Baus, RN, MS, kristie.baus@cms.hhs.gov, 410-786-8161-

Measure Developer If different from Measure Steward
Co.3 **Organization**
Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-01-02, Baltimore, Maryland, 21244-1850

Co.4 **Point of Contact**
Kristie, Baus, RN, MS, kristie.baus@cms.hhs.gov, 410-786-8161-

Co.5 **Submitter If different from Measure Steward POC**
Wanda, Johnson, RN, wjohnson@ofmq.com, 405-302-3278-, Oklahoma Foundation for Medical Quality

Co.6 **Additional organizations that sponsored/participated in measure development**
This measure is aligned with the Joint Commission.

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 **Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**
The Surgical Care Improvement Project´s Infection TEP was involved in this measure´s development and remains involved in its maintenance.

Ad.2 **If adapted, provide name of original measure:**
Ad.3-5 **If adapted, provide original specifications URL or attachment**

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 **Year the measure was first released:** 2001
Ad.7 **Month and Year of most recent revision:** 10, 2010
Ad.8 **What is your frequency for review/update of this measure?** Every 6 months
Ad.9 **When is the next scheduled review/update for this measure?** 04, 2011

Ad.10 Copyright statement/disclaimers: Trend Report (BM= Benchmark, rate = national score) Q209 BM: 99.7 Rate: 95.9 Q309 BM: 99.8 Rate 96.2 Q409 BM: 99.8 Rate 96.5 Q110 BM: 99.8 Rate 96.9 Q210 BM: 99.8 Rate 97.1
Ad.11 -13 Additional Information web page URL or attachment: Attachment IP Measures Disp_2009-634369268791761995.xls
Date of Submission (*MM/DD/YY*)**:** 03/28/2011

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Race/Ethnicity (3% of cases were excluded due to missing data on race/ethnicity)

Measures and Race/ethnicity group	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
Caucasian	247,145	251,158	98.4	ref.	ref.
African-American	36,868	37,747	97.7	0.68 (0.63-0.73)	<0.001
Hispanic	26,561	27,316	97.2	0.57 (0.53-0.62)	<0.001
Asian/Pacific Islander	7,346	7,472	98.3	0.95 (0.79-1.13)	0.548
Native American	1,074	1,087	98.8	1.34 (0.78-2.32)	0.293
AMI2: Aspirin at discharge					
Caucasian	305,754	310,489	98.5	ref.	ref.
African-American	39,545	40,591	97.4	0.59 (0.55-0.63)	<0.001
Hispanic	27,791	28,805	96.5	0.42 (0.40-0.45)	<0.001
Asian/Pacific Islander	7,694	7,854	98.0	0.74 (0.64-0.87)	<0.001
Native American	1,908	1,935	98.6	1.09 (0.75-1.60)	0.643
AMI3: ACEI or ARB for LVSD					
Caucasian	54,767	57,482	95.3	ref.	ref.
African-American	8,642	9,024	95.8	1.12 (1.01-1.25)	0.040
Hispanic	5,591	5,896	94.8	0.91 (0.80-1.03)	0.123
Asian/Pacific Islander	1,302	1,372	94.9	0.92 (0.72-1.18)	0.514
Native American	371	393	94.4	0.84 (0.54-1.29)	0.416
AMI4: Smoking cessation counseling					
Caucasian	103,977	104,611	99.4	ref.	ref.
African-American	16,611	16,741	99.2	0.78 (0.64-0.94)	0.010
Hispanic	7,671	7,757	98.9	0.54 (0.43-0.68)	<0.001
Asian/Pacific Islander	1,720	1,747	98.5	0.39 (0.26-0.57)	<0.001
Native American	753	767	98.2	0.33 (0.19-0.56)	<0.001
AMI5: Beta-blocker at discharge					
Caucasian	298,954	304,013	98.3	ref.	ref.
African-American	39,112	40,008	97.8	0.74 (0.69-0.79)	<0.001
Hispanic	27,331	28,382	96.3	0.44 (0.41-0.47)	<0.001

Asian/Pacific Islander	7,602	7,738	98.2	0.95 (0.80-1.12)	0.526
Native American	1,841	1,882	97.8	0.76 (0.56-1.04)	0.083
AMI7a: Fibrinolytic within 30 minutes					
Caucasian	651	1,169	55.7	ref.	ref.
African-American	73	157	46.5	0.69 (0.50-0.97)	0.030
Hispanic	190	417	45.6	0.67 (0.53-0.83)	<0.001
Asian/Pacific Islander	36	61	59.0	1.15 (0.68-1.93)	0.610
Native American	1	3	33.3	0.40 (0.04-4.40)	0.452
AMI8a: PCI within 90 minutes					
Caucasian	38,044	43,171	88.1	ref.	ref.
African-American	3,448	4,234	81.4	0.59 (0.54-0.64)	<0.001
Hispanic	3,297	3,936	83.8	0.70 (0.64-0.76)	<0.001
Asian/Pacific Islander	1,079	1,237	87.2	0.92 (0.78-1.09)	0.337
Native American	160	189	84.7	0.74 (0.50-1.11)	0.143
HF1: Discharge instructions					
Caucasian	357,746	414,742	86.3	ref.	ref.
African-American	124,070	143,689	86.3	1.01 (0.99-1.03)	0.400
Hispanic	44,786	51,690	86.6	1.03 (1.01-1.06)	0.016
Asian/Pacific Islander	9,895	11,375	87.0	1.07 (1.01-1.13)	0.025
Native American	2,351	3,083	76.3	0.51 (0.47-0.56)	<0.001
HF2: Evaluation of LV function					
Caucasian	521,142	535,940	97.2	ref.	ref.
African-American	159,661	163,219	97.8	1.27 (1.23-1.32)	<0.001
Hispanic	55,388	57,714	96.0	0.68 (0.65-0.71)	<0.001
Asian/Pacific Islander	12,720	13,004	97.8	1.27 (1.13-1.43)	<0.001
Native American	3,201	3,416	93.7	0.42 (0.37-0.49)	<0.001
HF3: ACEI or ARB for LVSD					
Caucasian	145,067	155,808	93.1	ref.	ref.
African-American	66,217	69,597	95.1	1.45 (1.39-1.51)	<0.001
Hispanic	18,769	20,068	93.5	1.07 (1.01-1.14)	0.026
Asian/Pacific Islander	3,777	3,962	95.3	1.51 (1.30-1.75)	<0.001
Native American	1,173	1,278	91.8	0.83 (0.68-1.01)	0.064
HF4: Smoking cessation counseling					
Caucasian	76,177	77,858	97.8	ref.	ref.

African-American	44,071	44,760	98.5	1.41 (1.29-1.54)	<0.001
Hispanic	7,273	7,423	98.0	1.07 (0.90-1.27)	0.432
Asian/Pacific Islander	1,375	1,413	97.3	0.80 (0.58-1.11)	0.176
Native American	692	732	94.5	0.38 (0.28-0.53)	<0.001
PN2: Pnemococal vaccination given or screened for					
Caucasian	378,259	408,034	92.7	ref.	ref.
African-American	34,705	39,186	88.6	0.61 (0.59-0.63)	<0.001
Hispanic	24,135	28,528	84.6	0.43 (0.42-0.45)	<0.001
Asian/Pacific Islander	8,804	9,900	88.9	0.63 (0.59-0.67)	<0.001
Native American	2,310	2,640	87.5	0.55 (0.49-0.62)	<0.001
PN3a: Initial blood culture within 24 hours - ICU only					
Caucasian	78,108	82,387	94.8	ref.	ref.
African-American	12,551	13,078	96.0	1.30 (1.19-1.43)	<0.001
Hispanic	7,338	7,863	93.3	0.77 (0.70-0.84)	<0.001
Asian/Pacific Islander	2,199	2,271	96.8	1.67 (1.32-2.12)	<0.001
Native American	776	846	91.7	0.61 (0.47-0.78)	<0.001
PN3b: Initial blood culture before first antibiotic dose - ED only					
Caucasian	361,802	380,083	95.2	ref.	ref.
African-American	56,541	60,416	93.6	0.74 (0.71-0.76)	<0.001
Hispanic	34,169	37,132	92.0	0.58 (0.56-0.61)	<0.001
Asian/Pacific Islander	9,388	9,889	94.9	0.95 (0.86-1.04)	0.240
Native American	3,058	3,402	89.9	0.45 (0.40-0.50)	<0.001
PN4: Smoking cessation counseling					
Caucasian	153,759	158,876	96.8	ref.	ref.
African-American	30,859	31,710	97.3	1.21 (1.12-1.30)	<0.001
Hispanic	9,885	10,230	96.6	0.95 (0.85-1.07)	0.400
Asian/Pacific Islander	1,689	1,759	96.0	0.80 (0.63-1.02)	0.074
Native American	1,722	1,940	88.8	0.26 (0.23-0.30)	<0.001
PN5c: First antibiotic dose within 6 hours					
Caucasian	402,180	421,893	95.3	ref.	ref.
African-American	60,989	66,036	92.4	0.59 (0.57-0.61)	<0.001
Hispanic	35,145	39,094	89.9	0.44 (0.42-0.45)	<0.001
Asian/Pacific Islander	9,399	9,865	95.3	0.99 (0.90-1.09)	0.812
Native American	3,430	3,752	91.4	0.52 (0.47-0.59)	<0.001

PN6: Antibioti selection consistent with guidelines					
Caucasian	254,116	279,291	91.0	ref.	ref.
African-American	35,023	38,201	91.7	1.09 (1.05-1.13)	<0.001
Hispanic	25,350	28,361	89.4	0.83 (0.80-0.87)	<0.001
Asian/Pacific Islander	6,093	6,689	91.1	1.01 (0.93-1.10)	0.770
Native American	2,570	2,922	88.0	0.72 (0.65-0.81)	<0.001
PN7: Influenza vaccination given or screened for					
Caucasian	266,920	293,208	91.0	ref.	ref.
African-American	31,910	37,007	86.2	0.62 (0.60-0.64)	<0.001
Hispanic	18,854	22,505	83.8	0.51 (0.49-0.53)	<0.001
Asian/Pacific Islander	5,702	6,539	87.2	0.67 (0.62-0.72)	<0.001
Native American	1,927	2,405	80.1	0.40 (0.36-0.44)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
Caucasian	827,536	860,067	96.2	ref.	ref.
African-American	95,484	99,527	95.9	0.93 (0.90-0.96)	<0.001
Hispanic	60,439	64,806	93.3	0.54 (0.53-0.56)	<0.001
Asian/Pacific Islander	14,743	15,282	96.5	1.08 (0.99-1.17)	0.101
Native American	4,037	4,325	93.3	0.55 (0.49-0.62)	<0.001
SCIP2: Prophylactic antibiotic consistent with guidelines					
Caucasian	848,411	868,974	97.6	ref.	ref.
African-American	97,576	100,464	97.1	0.82 (0.79-0.85)	<0.001
Hispanic	62,778	64,991	96.6	0.69 (0.66-0.72)	<0.001
Asian/Pacific Islander	15,171	15,547	97.6	0.98 (0.88-1.08)	0.672
Native American	4,230	4,360	97.0	0.79 (0.66-0.94)	0.008
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
Caucasian	766,551	819,715	93.5	ref.	ref.
African-American	87,315	94,468	92.4	0.85 (0.83-0.87)	<0.001
Hispanic	54,461	61,420	88.7	0.54 (0.53-0.56)	<0.001
Asian/Pacific Islander	13,218	14,358	92.1	0.80 (0.76-0.85)	<0.001
Native American	3,812	4,103	92.9	0.91 (0.81-1.02)	0.116
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
Caucasian	134,822	144,908	93.0	ref.	ref.
African-American	10,742	11,722	91.6	0.82 (0.77-0.88)	<0.001
Hispanic	11,031	12,520	88.1	0.55 (0.52-0.59)	<0.001

Asian/Pacific Islander	3,437	3,773	91.1	0.77 (0.68-0.86)	<0.001
Native American	706	766	92.2	0.88 (0.68-1.15)	0.344
SCIP6: appropriate hair removal					
Caucasian	1,222,603	1,232,305	99.2	ref.	ref.
African-American	149,984	151,395	99.1	0.84 (0.80-0.89)	<0.001
Hispanic	95,326	97,273	98.0	0.39 (0.37-0.41)	<0.001
Asian/Pacific Islander	23,368	23,575	99.1	0.90 (0.78-1.03)	0.119
Native American	6,390	6,543	97.7	0.33 (0.28-0.39)	<0.001
SCIPCARD2: Perioperative period beta blocker					
Caucasian	327,860	359,462	91.2	ref.	ref.
African-American	34,505	38,004	90.8	0.95 (0.92-0.99)	0.007
Hispanic	17,805	20,128	88.5	0.74 (0.71-0.77)	<0.001
Asian/Pacific Islander	5,128	5,770	88.9	0.77 (0.71-0.84)	<0.001
Native American	1,312	1,493	87.9	0.70 (0.60-0.82)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
Caucasian	343,547	367,129	93.6	ref.	ref.
African-American	49,075	52,658	93.2	0.94 (0.91-0.98)	<0.001
Hispanic	27,199	30,224	90.0	0.62 (0.59-0.64)	<0.001
Asian/Pacific Islander	7,406	8,195	90.4	0.64 (0.60-0.69)	<0.001
Native American	1,999	2,208	90.5	0.66 (0.57-0.76)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
Caucasian	334,443	365,471	91.5	ref.	ref.
African-American	47,804	52,220	91.5	1.00 (0.97-1.04)	0.798
Hispanic	26,376	29,811	88.5	0.71 (0.69-0.74)	<0.001
Asian/Pacific Islander	7,241	8,126	89.1	0.76 (0.71-0.81)	<0.001
Native American	1,942	2,183	89.0	0.75 (0.65-0.86)	<0.001

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Gender (less than 0.1% of cases were excluded due to missing data on gender)

Measures and gender	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
Female	132,222	135,450	97.6	ref.	ref.
Male	197,136	199,829	98.7	1.79 (1.70-1.88)	<0.001
AMI2: Aspirin at discharge					
Female	150,930	154,577	97.6	ref.	ref.
Male	247,653	251,152	98.6	1.71 (1.63-1.79)	<0.001
AMI3: ACEI or ARB for LVSD					
Female	26,127	27,376	95.4	ref.	ref.
Male	47,156	49,502	95.3	0.96 (0.90-1.03)	0.269
AMI4: Smoking cessation counseling					
Female	42,885	43,241	99.2	ref.	ref.
Male	93,180	93,741	99.4	1.38 (1.21-1.58)	<0.001
AMI5: Beta-blocker at discharge					
Female	149,171	152,804	97.6	ref.	ref.
Male	240,965	244,715	98.5	1.56 (1.49-1.64)	<0.001
AMI7a: Fibrinolytic within 30 minutes					
Female	254	523	48.6	ref.	ref.
Male	730	1,347	54.2	1.25 (1.02-1.53)	0.029
AMI8a: PCI within 90 minutes					
Female	12,629	15,029	84.0	ref.	ref.
Male	35,545	40,118	88.6	1.48 (1.40-1.56)	<0.001
HF1: Discharge instructions					
Female	264,674	308,679	85.7	ref.	ref.
Male	286,692	330,544	86.7	1.09 (1.07-1.10)	<0.001
HF2: Evaluation of LV function					
Female	391,232	403,675	96.9	ref.	ref.
Male	378,142	387,472	97.6	1.29 (1.25-1.32)	<0.001
HF3: ACEI or ARB for LVSD					
Female	92,111	98,257	93.7	ref.	ref.
Male	148,513	158,409	93.8	1.00 (0.97-1.03)	0.936
HF4: Smoking cessation counseling					

Female	51,445	52,630	97.7	ref.	ref.
Male	80,801	82,294	98.2	1.25 (1.15-1.35)	<0.001
PN2: Pnemococal vaccination given or screened for					
Female	247,221	269,382	91.8	ref.	ref.
Male	212,145	231,563	91.6	0.98 (0.96-1.00)	0.042
PN3a: Initial blood culture within 24 hours - ICU only					
Female	50,079	52,932	94.6	ref.	ref.
Male	53,544	56,305	95.1	1.10 (1.05-1.17)	<0.001
PN3b: Initial blood culture before first antibiotic dose - ED only					
Female	246,104	260,181	94.6	ref.	ref.
Male	230,916	243,503	94.8	1.05 (1.02-1.08)	<0.001
PN4: Smoking cessation counseling					
Female	103,237	106,615	96.8	ref.	ref.
Male	99,296	102,754	96.6	0.94 (0.90-0.99)	0.011
PN5c: First antibiotic dose within 6 hours					
Female	272,016	288,698	94.2	ref.	ref.
Male	252,643	266,222	94.9	1.14 (1.11-1.17)	<0.001
PN6: Antibioti selection consistent with guidelines					
Female	175,954	193,373	91.0	ref.	ref.
Male	156,410	172,235	90.8	0.98 (0.96-1.00)	0.059
PN7: Influenza vaccination given or screened for					
Female	180,348	200,180	90.1	ref.	ref.
Male	153,242	170,972	89.6	0.95 (0.93-0.97)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
Female	660,133	687,675	96.0	ref.	ref.
Male	383,816	399,901	96.0	1.00 (0.98-1.02)	0.660
SCIP2: Prophylactic antibiotic consistent with guidelines					
Female	672,428	691,674	97.2	ref.	ref.
Male	398,658	406,588	98.0	1.44 (1.40-1.48)	<0.001
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
Female	613,378	657,129	93.3	ref.	ref.
Male	351,165	378,744	92.7	0.91 (0.89-0.92)	<0.001
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
Female	52,328	56,457	92.7	ref.	ref.
Male	114,589	124,004	92.4	0.96 (0.92-1.00)	0.038

SCIP6: appropriate hair removal					
Female	944,375	951,265	99.3	ref.	ref.
Male	613,124	620,263	98.8	0.63 (0.61-0.65)	<0.001
SCIPCARD2: Perioperative period beta blocker					
Female	210,810	232,468	90.7	ref.	ref.
Male	189,354	207,438	91.3	1.08 (1.05-1.10)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
Female	266,908	284,212	93.9	ref.	ref.
Male	177,139	192,153	92.2	0.76 (0.75-0.78)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
Female	260,379	282,821	92.1	ref.	ref.
Male	171,935	190,847	90.1	0.78 (0.77-0.80)	<0.001

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Age-Group

Measures and age group	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
under 65 years	141,150	142,677	98.9	ref.	ref.
65 to 74 years	69,462	70,636	98.3	0.64 (0.59-0.69)	<0.001
75 to 84 years	68,661	70,270	97.7	0.46 (0.43-0.50)	<0.001
85 or older	50,094	51,705	96.9	0.34 (0.31-0.36)	<0.001
AMI2: Aspirin at discharge					
under 65 years	188,910	191,432	98.7	ref.	ref.
65 to 74 years	86,865	88,378	98.3	0.77 (0.72-0.82)	<0.001
75 to 84 years	76,528	78,185	97.9	0.62 (0.58-0.66)	<0.001
85 or older	46,290	47,744	97.0	0.42 (0.40-0.45)	<0.001
AMI3: ACEI or ARB for LVSD					
under 65 years	30,729	31,955	96.2	ref.	ref.
65 to 74 years	16,782	17,608	95.3	0.81 (0.74-0.89)	<0.001
75 to 84 years	16,144	17,053	94.7	0.71 (0.65-0.77)	<0.001
85 or older	9,631	10,265	93.8	0.61 (0.55-0.67)	<0.001
AMI4: Smoking cessation counseling					
under 65 years	101,819	102,305	99.5	ref.	ref.
65 to 74 years	23,569	23,794	99.1	0.50 (0.43-0.59)	<0.001
75 to 84 years	8,919	9,074	98.3	0.27 (0.23-0.33)	<0.001
85 or older	1,762	1,813	97.2	0.16 (0.12-0.22)	<0.001
AMI5: Beta-blocker at discharge					
under 65 years	181,451	184,294	98.5	ref.	ref.
65 to 74 years	85,291	86,894	98.2	0.83 (0.78-0.89)	<0.001
75 to 84 years	76,749	78,361	97.9	0.75 (0.70-0.79)	<0.001
85 or older	46,654	47,979	97.2	0.55 (0.52-0.59)	<0.001
AMI7a: Fibrinolytic within 30 minutes					
under 65 years	648	1,212	53.5	ref.	ref.
65 to 74 years	194	358	54.2	1.03 (0.81-1.30)	0.810
75 to 84 years	93	202	46.0	0.74 (0.55-1.00)	0.051
85 or older	49	98	50.0	0.87 (0.58-1.31)	0.508
AMI8a: PCI within 90 minutes					
under 65 years	31,621	35,686	88.6	ref.	ref.
65 to 74 years	9,116	10,546	86.4	0.82 (0.77-0.87)	<0.001
75 to 84 years	5,398	6,466	83.5	0.65 (0.60-0.70)	<0.001
85 or older	2,040	2,451	83.2	0.64 (0.57-0.71)	<0.001
HF1: Discharge instructions					
under 65 years	178,658	207,594	86.1	ref.	ref.
65 to 74 years	123,528	143,712	86.0	0.99 (0.97-1.01)	0.373
75 to 84 years	151,451	175,244	86.4	1.03 (1.01-1.05)	0.001
85 or older	97,755	112,707	86.7	1.06 (1.04-1.08)	<0.001
HF2: Evaluation of LV function					

under 65 years	216,443	221,533	97.7	ref.	ref.
65 to 74 years	162,507	166,888	97.4	0.87 (0.84-0.91)	<0.001
75 to 84 years	220,926	227,028	97.3	0.85 (0.82-0.88)	<0.001
85 or older	169,548	175,750	96.5	0.64 (0.62-0.67)	<0.001
HF3: ACEI or ARB for LVSD					
under 65 years	95,238	99,651	95.6	ref.	ref.
65 to 74 years	52,803	56,622	93.3	0.64 (0.61-0.67)	<0.001
75 to 84 years	58,917	63,666	92.5	0.57 (0.55-0.60)	<0.001
85 or older	33,681	36,742	91.7	0.51 (0.49-0.53)	<0.001
HF4: Smoking cessation counseling					
under 65 years	78,879	80,061	98.5	ref.	ref.
65 to 74 years	31,278	32,007	97.7	0.64 (0.59-0.71)	<0.001
75 to 84 years	17,689	18,260	96.9	0.46 (0.42-0.51)	<0.001
85 or older	4,402	4,599	95.7	0.33 (0.29-0.39)	<0.001
PN2: Pnemococal vaccination given or screened for					
under 65 years	--	--	--	--	--
65 to 74 years	154,049	168,347	91.5	ref.	ref.
75 to 84 years	180,579	195,787	92.2	1.10 (1.08-1.13)	<0.001
85 or older	124,772	136,849	91.2	0.96 (0.93-0.98)	0.001
PN3a: Initial blood culture within 24 hours - ICU only					
under 65 years	43,154	45,370	95.1	ref.	ref.
65 to 74 years	23,165	24,488	94.6	0.90 (0.84-0.96)	0.003
75 to 84 years	23,777	25,070	94.8	0.94 (0.88-1.01)	0.111
85 or older	13,530	14,312	94.5	0.89 (0.82-0.97)	0.006
PN3b: Initial blood culture before first antibiotic dose - ED only					
under 65 years	180,506	192,602	93.7	ref.	ref.
65 to 74 years	92,223	97,052	95.0	1.28 (1.24-1.32)	<0.001
75 to 84 years	116,268	121,901	95.4	1.38 (1.34-1.43)	<0.001
85 or older	88,051	92,159	95.5	1.44 (1.39-1.49)	<0.001
PN4: Smoking cessation counseling					
under 65 years	138,481	142,258	97.3	ref.	ref.
65 to 74 years	39,066	40,713	96.0	0.65 (0.61-0.69)	<0.001
75 to 84 years	20,330	21,389	95.0	0.52 (0.49-0.56)	<0.001
85 or older	4,673	5,027	93.0	0.36 (0.32-0.40)	<0.001
PN5c: First antibiotic dose within 6 hours					
under 65 years	196,974	210,170	93.7	ref.	ref.
65 to 74 years	103,529	109,243	94.8	1.21 (1.18-1.25)	<0.001
75 to 84 years	128,404	134,912	95.2	1.32 (1.28-1.36)	<0.001
85 or older	95,798	100,641	95.2	1.33 (1.28-1.37)	<0.001
PN6: Antibioti selection consistent with guidelines					
under 65 years	145,078	158,844	91.3	ref.	ref.
65 to 74 years	60,719	67,599	89.8	0.84 (0.81-0.86)	<0.001
75 to 84 years	74,042	81,558	90.8	0.93 (0.91-0.96)	<0.001
85 or older	52,553	57,638	91.2	0.98 (0.95-1.01)	0.255
PN7: Influenza vaccination given or screened for					
under 65 years	92,150	105,920	87.0	ref.	ref.
65 to 74 years	80,824	89,267	90.5	1.43 (1.39-1.47)	<0.001

75 to 84 years	94,637	103,395	91.5	1.61 (1.57-1.66)	<0.001
85 or older	65,988	72,586	90.9	1.49 (1.45-1.54)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
under 65 years	543,747	565,392	96.2	ref.	ref.
65 to 74 years	264,596	275,189	96.2	0.99 (0.97-1.02)	0.637
75 to 84 years	185,731	194,018	95.7	0.89 (0.87-0.92)	<0.001
85 or older	49,930	53,035	94.1	0.64 (0.62-0.67)	<0.001
SCIP2: Prophylactic antibiotic consistent with guidelines					
under 65 years	554,132	569,841	97.2	ref.	ref.
65 to 74 years	272,719	278,267	98.0	1.39 (1.35-1.44)	<0.001
75 to 84 years	192,365	196,738	97.8	1.25 (1.21-1.29)	<0.001
85 or older	51,927	53,474	97.1	0.95 (0.90-1.00)	0.066
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
under 65 years	509,115	543,621	93.7	ref.	ref.
65 to 74 years	243,668	262,144	93.0	0.89 (0.88-0.91)	<0.001
75 to 84 years	168,265	182,048	92.4	0.83 (0.81-0.84)	<0.001
85 or older	43,548	48,116	90.5	0.65 (0.63-0.67)	<0.001
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
under 65 years	72,979	79,327	92.0	ref.	ref.
65 to 74 years	52,359	56,792	92.2	1.03 (0.99-1.07)	0.185
75 to 84 years	36,879	39,404	93.6	1.27 (1.21-1.33)	<0.001
85 or older	4,704	4,942	95.2	1.72 (1.51-1.96)	<0.001
SCIP6: appropriate hair removal					
under 65 years	810,303	818,220	99.0	ref.	ref.
65 to 74 years	380,445	383,750	99.1	1.12 (1.08-1.17)	<0.001
75 to 84 years	279,516	281,752	99.2	1.22 (1.17-1.28)	<0.001
85 or older	87,319	87,891	99.3	1.49 (1.37-1.62)	<0.001
SCIPCARD2: Perioperative period beta blocker					
under 65 years	143,202	157,742	90.8	ref.	ref.
65 to 74 years	125,183	136,865	91.5	1.09 (1.06-1.12)	<0.001
75 to 84 years	101,842	111,827	91.1	1.04 (1.01-1.06)	0.010
85 or older	29,959	33,499	89.4	0.86 (0.83-0.89)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
under 65 years	204,866	222,992	91.9	ref.	ref.
65 to 74 years	111,168	117,886	94.3	1.46 (1.42-1.51)	<0.001
75 to 84 years	92,459	97,769	94.6	1.54 (1.49-1.59)	<0.001
85 or older	35,581	37,747	94.3	1.45 (1.39-1.52)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
under 65 years	199,284	221,436	90.0	ref.	ref.
65 to 74 years	108,467	117,367	92.4	1.35 (1.32-1.39)	<0.001
75 to 84 years	90,083	97,336	92.5	1.38 (1.34-1.42)	<0.001
85 or older	34,507	37,557	91.9	1.26 (1.21-1.31)	<0.001

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Census Region

Measures and census region	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
South	126,608	129,145	98.0	ref.	ref.
Midwest	75,072	76,242	98.5	1.29 (1.20-1.38)	<0.001
Northeast	62,335	63,302	98.5	1.29 (1.20-1.39)	<0.001
West	61,600	62,432	98.7	1.48 (1.37-1.61)	<0.001
US Territories	3,752	4,167	90.0	0.18 (0.16-0.20)	<0.001
AMI2: Aspirin at discharge					
South	154,361	157,475	98.0	ref.	ref.
Midwest	96,702	98,082	98.6	1.41 (1.33-1.51)	<0.001
Northeast	72,945	73,951	98.6	1.46 (1.36-1.57)	<0.001
West	71,443	72,548	98.5	1.30 (1.22-1.40)	<0.001
US Territories	3,142	3,683	85.3	0.12 (0.11-0.13)	<0.001
AMI3: ACEI or ARB for LVSD					
South	30,162	31,629	95.4	ref.	ref.
Midwest	17,573	18,369	95.7	1.07 (0.98-1.17)	0.114
Northeast	13,443	14,124	95.2	0.96 (0.87-1.05)	0.392
West	11,325	11,875	95.4	1.00 (0.91-1.11)	0.977
US Territories	783	884	88.6	0.38 (0.30-0.47)	<0.001
AMI4: Smoking cessation counseling					
South	59,052	59,326	99.5	ref.	ref.
Midwest	34,282	34,529	99.3	0.64 (0.54-0.77)	<0.001
Northeast	21,314	21,497	99.1	0.54 (0.45-0.65)	<0.001
West	20,782	20,940	99.2	0.61 (0.50-0.74)	<0.001
US Territories	639	694	92.1	0.05 (0.04-0.07)	<0.001
AMI5: Beta-blocker at discharge					
South	150,602	153,698	98.0	ref.	ref.
Midwest	94,600	96,058	98.5	1.33 (1.25-1.42)	<0.001
Northeast	72,919	73,919	98.6	1.50 (1.40-1.61)	<0.001
West	68,776	70,048	98.2	1.11 (1.04-1.19)	0.002
US Territories	3,248	3,805	85.4	0.12 (0.11-0.13)	<0.001
AMI7a: Fibrinolytic within 30 minutes					
South	386	691	55.9	ref.	ref.
Midwest	71	157	45.2	0.65 (0.46-0.92)	0.016
Northeast	114	221	51.6	0.84 (0.62-1.14)	0.266
West	325	577	56.3	1.02 (0.82-1.27)	0.868
US Territories	88	224	39.3	0.51 (0.38-0.70)	<0.001
AMI8a: PCI within 90 minutes					
South	18,249	21,033	86.8	ref.	ref.
Midwest	12,047	13,530	89.0	1.24 (1.16-1.33)	<0.001
Northeast	7,776	8,945	86.9	1.01 (0.94-1.09)	0.695
West	10,077	11,545	87.3	1.05 (0.98-1.12)	0.182

US Territories	26	96	27.1	0.06 (0.04-0.09)	<0.001
HF1: Discharge instructions					
South	230,620	268,753	85.8	ref.	ref.
Midwest	123,214	142,800	86.3	1.04 (1.02-1.06)	<0.001
Northeast	104,441	118,681	88.0	1.21 (1.19-1.24)	<0.001
West	87,789	101,987	86.1	1.02 (1.00-1.04)	0.037
US Territories	5,328	7,036	75.7	0.52 (0.49-0.55)	<0.001
HF2: Evaluation of LV function					
South	313,881	323,530	97.0	ref.	ref.
Midwest	177,519	182,711	97.2	1.05 (1.02-1.09)	0.004
Northeast	154,546	157,057	98.4	1.89 (1.81-1.98)	<0.001
West	117,503	120,882	97.2	1.07 (1.03-1.11)	0.001
US Territories	5,975	7,019	85.1	0.18 (0.16-0.19)	<0.001
HF3: ACEI or ARB for LVSD					
South	102,341	109,272	93.7	ref.	ref.
Midwest	54,335	57,985	93.7	1.01 (0.97-1.05)	0.700
Northeast	44,314	47,239	93.8	1.03 (0.98-1.07)	0.259
West	37,449	39,660	94.4	1.15 (1.09-1.21)	<0.001
US Territories	2,200	2,525	87.1	0.46 (0.41-0.52)	<0.001
HF4: Smoking cessation counseling					
South	60,779	61,825	98.3	ref.	ref.
Midwest	30,645	31,366	97.7	0.73 (0.66-0.81)	<0.001
Northeast	20,880	21,315	98.0	0.83 (0.74-0.92)	<0.001
West	19,359	19,792	97.8	0.77 (0.69-0.86)	<0.001
US Territories	585	629	93.0	0.23 (0.17-0.31)	<0.001
PN2: Pnemococal vaccination given or screened for					
South	179,960	194,612	92.5	ref.	ref.
Midwest	114,202	124,453	91.8	0.91 (0.88-0.93)	<0.001
Northeast	88,746	95,893	92.5	1.01 (0.98-1.04)	0.466
West	75,360	83,017	90.8	0.80 (0.78-0.82)	<0.001
US Territories	1,132	3,008	37.6	0.05 (0.05-0.05)	<0.001
PN3a: Initial blood culture within 24 hours - ICU only					
South	41,731	43,940	95.0	ref.	ref.
Midwest	24,196	25,563	94.7	0.94 (0.87-1.00)	0.065
Northeast	16,787	17,632	95.2	1.05 (0.97-1.14)	0.225
West	20,703	21,725	95.3	1.07 (0.99-1.16)	0.072
US Territories	209	380	55.0	0.06 (0.05-0.08)	<0.001
PN3b: Initial blood culture before first antibiotic dose - ED only					
South	187,438	197,520	94.9	ref.	ref.
Midwest	110,172	115,477	95.4	1.12 (1.08-1.16)	<0.001
Northeast	93,600	98,873	94.7	0.95 (0.92-0.99)	0.008
West	83,935	89,171	94.1	0.86 (0.83-0.89)	<0.001
US Territories	1,903	2,673	71.2	0.13 (0.12-0.14)	<0.001
PN4: Smoking cessation counseling					
South	91,072	93,604	97.3	ref.	ref.
Midwest	48,987	51,087	95.9	0.65 (0.61-0.69)	<0.001
Northeast	32,410	33,325	97.3	0.98 (0.91-1.06)	0.695

West	29,466	30,694	96.0	0.67 (0.62-0.72)	<0.001
US Territories	615	677	90.8	0.28 (0.21-0.36)	<0.001
PN5c: First antibiotic dose within 6 hours					
South	208,883	220,861	94.6	ref.	ref.
Midwest	128,036	134,173	95.4	1.20 (1.16-1.23)	<0.001
Northeast	96,895	102,680	94.4	0.96 (0.93-0.99)	0.014
West	88,422	93,297	94.8	1.04 (1.01-1.08)	0.024
US Territories	2,469	3,955	62.4	0.10 (0.09-0.10)	<0.001
PN6: Antibioti selection consistent with guidelines					
South	134,164	147,904	90.7	ref.	ref.
Midwest	78,294	86,405	90.6	0.99 (0.96-1.02)	0.434
Northeast	59,152	63,980	92.5	1.25 (1.21-1.30)	<0.001
West	58,295	63,887	91.2	1.07 (1.03-1.10)	<0.001
US Territories	2,487	3,463	71.8	0.26 (0.24-0.28)	<0.001
PN7: Influenza vaccination given or screened for					
South	136,798	151,103	90.5	ref.	ref.
Midwest	82,023	90,887	90.2	0.97 (0.94-0.99)	0.021
Northeast	60,341	66,389	90.9	1.04 (1.01-1.08)	0.008
West	53,674	60,817	88.3	0.79 (0.76-0.81)	<0.001
US Territories	763	1,972	38.7	0.07 (0.06-0.07)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
South	394,545	409,842	96.3	ref.	ref.
Midwest	266,459	276,954	96.2	0.98 (0.96-1.01)	0.223
Northeast	193,461	200,392	96.5	1.08 (1.05-1.11)	<0.001
West	183,368	192,227	95.4	0.80 (0.78-0.82)	<0.001
US Territories	6,171	8,219	75.1	0.12 (0.11-0.12)	<0.001
SCIP2: Prophylactic antibiotic consistent with guidelines					
South	403,132	414,194	97.3	ref.	ref.
Midwest	273,589	279,578	97.9	1.25 (1.21-1.29)	<0.001
Northeast	197,917	202,575	97.7	1.17 (1.13-1.21)	<0.001
West	189,102	194,077	97.4	1.04 (1.01-1.08)	0.015
US Territories	7,403	7,896	93.8	0.41 (0.38-0.45)	<0.001
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
South	361,060	388,513	92.9	ref.	ref.
Midwest	248,442	264,681	93.9	1.16 (1.14-1.19)	<0.001
Northeast	180,683	191,769	94.2	1.24 (1.21-1.27)	<0.001
West	169,118	183,133	92.3	0.92 (0.90-0.94)	<0.001
US Territories	5,293	7,833	67.6	0.16 (0.15-0.17)	<0.001
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
South	66,018	71,829	91.9	ref.	ref.
Midwest	40,808	44,136	92.5	1.08 (1.03-1.13)	<0.001
Northeast	29,288	30,993	94.5	1.51 (1.43-1.60)	<0.001
West	29,005	31,251	92.8	1.14 (1.08-1.20)	<0.001
US Territories	1,802	2,256	79.9	0.35 (0.31-0.39)	<0.001
SCIP6: appropriate hair removal					
South	587,629	592,145	99.2	ref.	ref.
Midwest	385,646	388,859	99.2	0.92 (0.88-0.97)	<0.001

Northeast	297,284	299,532	99.2	1.02 (0.97-1.07)	0.532
West	279,180	282,116	99.0	0.73 (0.70-0.77)	<0.001
US Territories	7,844	8,961	87.5	0.05 (0.05-0.06)	<0.001
SCIPCARD2: Perioperative period beta blocker					
South	147,784	162,051	91.2	ref.	ref.
Midwest	106,546	117,054	91.0	0.98 (0.95-1.01)	0.113
Northeast	85,381	92,184	92.6	1.21 (1.18-1.25)	<0.001
West	59,482	67,099	88.6	0.75 (0.73-0.78)	<0.001
US Territories	993	1,545	64.3	0.17 (0.16-0.19)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
South	169,988	182,774	93.0	ref.	ref.
Midwest	99,327	106,377	93.4	1.06 (1.03-1.09)	<0.001
Northeast	96,401	100,803	95.6	1.65 (1.59-1.71)	<0.001
West	76,837	84,597	90.8	0.74 (0.72-0.77)	<0.001
US Territories	1,521	1,843	82.5	0.36 (0.31-0.40)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
South	164,922	181,622	90.8	ref.	ref.
Midwest	96,639	105,893	91.3	1.06 (1.03-1.09)	<0.001
Northeast	94,639	100,532	94.1	1.63 (1.58-1.68)	<0.001
West	74,698	83,964	89.0	0.82 (0.79-0.84)	<0.001
US Territories	1,443	1,685	85.6	0.60 (0.53-0.69)	<0.001

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Hospital Rural/Urban Location (less than 0.1 of cases were excluded due to missing data on hospital rural/urban location)

Measures and hospital rural/urban location	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
Urban	291,143	295,802	98.4	ref.	ref.
Rural	38,206	39,467	96.8	0.48 (0.46-0.52)	<0.001
AMI2: Aspirin at discharge					
Urban	358,943	364,751	98.4	ref.	ref.
Rural	39,639	40,973	96.7	0.48 (0.45-0.51)	<0.001
AMI3: ACEI or ARB for LVSD					
Urban	65,715	68,816	95.5	ref.	ref.
Rural	7,570	8,064	93.9	0.72 (0.66-0.80)	<0.001
AMI4: Smoking cessation counseling					
Urban	122,296	123,021	99.4	ref.	ref.
Rural	13,772	13,964	98.6	0.43 (0.36-0.50)	<0.001
AMI5: Beta-blocker at discharge					
Urban	350,908	356,917	98.3	ref.	ref.
Rural	39,223	40,596	96.6	0.49 (0.46-0.52)	<0.001
AMI7a: Fibrinolytic within 30 minutes					
Urban	743	1,378	53.9	ref.	ref.
Rural	241	491	49.1	0.82 (0.67-1.01)	0.066
AMI8a: PCI within 90 minutes					
Urban	44,330	50,581	87.6	ref.	ref.
Rural	3,845	4,568	84.2	0.75 (0.69-0.82)	<0.001
HF1: Discharge instructions					
Urban	462,198	530,366	87.1	ref.	ref.
Rural	89,161	108,850	81.9	0.67 (0.66-0.68)	<0.001
HF2: Evaluation of LV function					
Urban	640,201	651,626	98.2	ref.	ref.
Rural	129,180	139,524	92.6	0.22 (0.22-0.23)	<0.001
HF3: ACEI or ARB for LVSD					
Urban	204,835	216,883	94.4	ref.	ref.
Rural	35,794	39,788	90.0	0.53 (0.51-0.55)	<0.001

HF4: Smoking cessation counseling					
Urban	109,946	111,420	98.7	ref.	ref.
Rural	22,294	23,495	94.9	0.25 (0.23-0.27)	<0.001
PN2: Pnemococal vaccination given or screened for					
Urban	343,445	372,029	92.3	ref.	ref.
Rural	115,907	128,899	89.9	0.74 (0.73-0.76)	<0.001
PN3a: Initial blood culture within 24 hours - ICU only					
Urban	82,609	86,195	95.8	ref.	ref.
Rural	21,017	23,045	91.2	0.45 (0.43-0.48)	<0.001
PN3b: Initial blood culture before first antibiotic dose - ED only					
Urban	370,713	390,752	94.9	ref.	ref.
Rural	106,285	112,910	94.1	0.87 (0.84-0.89)	<0.001
PN4: Smoking cessation counseling					
Urban	153,343	157,007	97.7	ref.	ref.
Rural	49,195	52,364	93.9	0.37 (0.35-0.39)	<0.001
PN5c: First antibiotic dose within 6 hours					
Urban	391,112	414,535	94.3	ref.	ref.
Rural	133,539	140,375	95.1	1.17 (1.14-1.20)	<0.001
PN6: Antibioti selection consistent with guidelines					
Urban	244,813	267,228	91.6	ref.	ref.
Rural	87,548	98,376	89.0	0.74 (0.72-0.76)	<0.001
PN7: Influenza vaccination given or screened for					
Urban	250,927	277,437	90.4	ref.	ref.
Rural	82,639	93,694	88.2	0.79 (0.77-0.81)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
Urban	873,006	907,766	96.2	ref.	ref.
Rural	170,887	179,749	95.1	0.77 (0.75-0.79)	<0.001
SCIP2: Prophylactic antibiotic consistent with guidelines					
Urban	895,997	917,696	97.6	ref.	ref.
Rural	175,035	180,505	97.0	0.77 (0.75-0.80)	<0.001
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
Urban	805,137	863,438	93.2	ref.	ref.
Rural	159,351	172,373	92.4	0.89 (0.87-0.90)	<0.001
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
Urban	155,675	168,209	92.5	ref.	ref.
Rural	11,246	12,256	91.8	0.90 (0.84-0.96)	0.001

SCIP6: appropriate hair removal					
Urban	1,304,767	1,316,311	99.1	ref.	ref.
Rural	252,581	255,064	99.0	0.90 (0.86-0.94)	<0.001
SCIPCARD2: Perioperative period beta blocker					
Urban	341,816	374,870	91.2	ref.	ref.
Rural	58,327	65,020	89.7	0.84 (0.82-0.87)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
Urban	368,551	393,488	93.7	ref.	ref.
Rural	75,501	82,880	91.1	0.69 (0.67-0.71)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
Urban	358,864	391,436	91.7	ref.	ref.
Rural	73,455	82,235	89.3	0.76 (0.74-0.78)	<0.001

SURGICAL IMPROVEMENT PROJECT (SCIP) CART PAPER TOOL

Provider Name: _____

CMS Certification Number (CCN): _____

National Provider Identifier (NPI): _____

Health Care Organization Identifier (HCOID): (Joint Commission Required) _____

First Name: _____

Last Name: _____

Sex: ☐ Female ☐ Male ☐ Unknown

Birthdate: _____
Dates are MM-DD-YYYY. UTD is not an allowable entry.

Race: (Select one option)
- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Native Hawaiian or Pacific Islander
- ☐ UTD

Hispanic Ethnicity:
- ☐ No
- ☐ Yes

Hospital Patient ID: _____
Up to 40 letters, numbers, and/or characters.

Admission Date: _____
Dates are MM-DD-YYYY. UTD is not an allowable entry.

Discharge Date: _____
Dates are MM-DD-YYYY. UTD is not an allowable entry.

Abstractor ID: _____

Abstraction Date: _____
Dates are MM-DD-YYYY. UTD is not an allowable entry.

Vendor Tracking ID:
(Joint Commission Required) _____

1. **Would you like the questions to be enabled or disabled appropriately per the measure algorithms, or do you want all questions enabled? (SKIPPATTERN**) (Data Entry Question Only)
2. **What was the ICD-9-CM code selected as the principal diagnosis for this record? (PRINDX)** (Format three digits period two digits):

   _____

3. **Were there ICD-9-CM Other Diagnosis Codes?(OTHRDX#A)**
   (Format three digits period two digits):

   _____ _____ _____

   _____ _____ _____

   _____ _____ _____

   _____ _____ _____

4. **Was there an ICD-9-CM code selected as the principal procedure for this record?**

ICD-9-CM Principal Procedure Code (PRINPXA) (Format three digits period two digits):	**Date Performed (PRINPXDATE)** Dates are (MM-DD-YYYY or UTD)
_____	_____

5. **Were there ICD-9-CM other Procedure Codes?**

ICD-9-CM Other Procedure Code(s) (OTHERPX#A) (Format three digits period two digits):	**Date Performed (OTHERPX#DT)** (Dates are MM-DD-YYYY or UTD)

6. **What is the patient's source of payment for this Episode of Care? (PMTSRCE)**

☐ Source of payment is Medicare
☐ Source of payment is Non-Medicare

7. **What is the patient's Medicare/HIC number? (PTHIC)** (Required for data transmission of all cases that have a standard HIC#, All alpha characters must be upper case)

_____

8. **What is the postal code of the patient's residence? (POSTALCODE)**
(Five or nine digits, HOMELESS or NON-US)

_____

9. **Does this case represent part of a sample? (SAMPLE)**

☐ Yes
☐ No

10. What was the patient's discharge disposition? (DISCHGSTAT)

- ☐ 01 Discharged to home care or self care (routine discharge)
- ☐ 02 Discharged/transferred to a short term general hospital for inpatient care
- ☐ 03 Discharged/transferred to skilled nursing facility (SNF) with Medicare certification in anticipation of skilled care
- ☐ 04 Discharged/transferred to a facility that provides custodial or supportive care
- ☐ 05 Discharged/transferred to a designated cancer center or children's hospital
- ☐ 06 Discharged/transferred to home under care of organized home health service organization in anticipation of covered skilled care
- ☐ 07 Left against medical advice or discontinued care
- ☐ 20 Expired
- ☐ 21 Discharged/transferred to court/law enforcement
- ☐ 43 Discharged/transferred to a federal health care facility
- ☐ 50 Hospice - home
- ☐ 51 Hospice - medical facility (certified) providing hospice level of care
- ☐ 61 Discharged/transferred to hospital-based Medicare approved swing bed
- ☐ 62 Discharged/transferred to an inpatient rehabilitation facility (IRF) including rehabilitation distinct part units of a hospital
- ☐ 63 Discharged/transferred to a Medicare certified long term care hospital (LTCH)
- ☐ 64 Discharged/transferred to a nursing facility certified under Medicaid but not certified under Medicare
- ☐ 65 Discharged/transferred to a psychiatric distinct part unit of a hospital
- ☐ 66 Discharged/transferred to a Critical Access Hospital (CAH)
- ☐ 70 Discharged/transferred to another type of health care institution not defined elsewhere in this code list (See Code 05)

11. Was the procedure performed entirely by laparoscope or other fiber optic scope? (LAPAROSCOPE)

- ☐ Yes
- ☐ No
- ☐ UTD

12. During this hospital stay, was the patient enrolled in a clinical trial in which patients with the same condition as the measure set were being studied (CLNCLTRIAL)

- ☐ Yes
- ☐ No

13. Is there documentation that the patient was on continuous warfarin prior to admission? (PREADWARFARIN)

- ☐ Yes
- ☐ No

14. On what date did the anesthesia for the procedure start? (ANESTSTARTDT)
Dates are in MM-DD-YYYY format unless specified

_____

☐ UTD

15. Did the patient have an infection during this hospitalization prior to the principal procedure? (INFECPTA)

☐ Yes
☐ No

16. Is there documentation that the patient expired during the timeframe from surgical incision through discharge from the post anesthesia care/recovery area? (PERIOPDEATH)

☐ Yes
☐ No

17. Were there any other procedures requiring general or spinal/epidural anesthesia that occurred within three days (four days for CABG or Other Cardiac Surgery) prior to or after the principal procedure during this hospital stay? (OTHERSURG)

☐ Yes
☐ No

18. Did the patient receive antibiotics within 24 hours of arrival or the day prior to arrival and/or during this hospital stay? (ANTIBIRCVD)

☐ Antibiotic received only within 24 hours of arrival or the day prior to arrival and not during hospital stay.
☐ Antibiotic received within 24 hours of arrival or the day prior to arrival and during hospital stay (arrival through 24 hours for PN and arrival through 48 hours postop [72 hours post op for CABG or Other Cardiac Surgery] for SCIP-Inf).
☐ Antibiotic received only during hospital stay (arrival through 24 hours for PN and arrival through 48 hours postop [72 hours post op for CABG or Other Cardiac Surgery] for SCIP-Inf).
☐ Antibiotic not received (within 24 hours of arrival or arrival through 24 hours for PN and arrival through 48 hours postop [72 hours post op for CABG or Other Cardiac Surgery] for SCIP-Inf), or unable to determine from medical record documentation.

19. What were the antibiotics administered any time after hospital arrival and within the specified timeframe? (ABXDETAILS)

Antibiotic Name (NAMEABX) (trade or generic) see Appendix C, Table 2.1.	**Antibiotic Administration Date (DTABX)** Dates are MM-DD-YYYY or UTD	**Antibiotic Administration Time (TMABX)** Times are military format HH:MM or UTD	**Antibiotic Administration Route (ROUTEABX)** Format: 1=PO/NG/PEG tube (Oral) 2=IV (Intravenous) 3=IM (Intramuscular) 10=UTD

20. **Were the only antibiotic combinations administered prior to hospital arrival or more than 24 hours prior to incision either oral Neomycin Sulfate + Erythromycin Base or oral Neomycin Sulfate + Metronidazole? (ORALANTIBIOTIC)**

☐ Yes
☐ No

21. **At what time was the anesthesia initiated for the principal procedure? (ANESTSTARTTM)HH:MM military format**

_____

☐ UTD

22. **At what time was the initial incision made for the principal procedure? (SURGINCISTM) HH:MM military format**

_____

☐ UTD

23. **On what date was the incision for the principal procedure made? (SURGINCISDT)** Dates are in MM-DD-YYYY format unless specified

_____

☐ UTD

24. **On what date did the anesthesia for the for the principal procedure end? (ANESTHENDDATE)** Dates are in MM-DD-YYYY format unless specified

_____

☐ UTD

25. **At what time did the anesthesia for the principal procedure end? (ANESTHENDTIME) HH:MM military format**

_____

☐ UTD

26. **What reason was documented postoperatively by the physician/APN/PA for extending the duration of the antibiotic administration past 24 hours (48 hours for CABG or Other Cardiac Surgery) after *Anesthesia End Time*?(RSNEXTABX)** ***(Select all that apply)***

☐ There is physician/advanced practice nurse/physician assistant (physician/APN/PA) documentation within 2 days (3 days for CABG or Other Cardiac Surgery) following the principal procedure with the day of surgery being day zero that erythromycin was administered postoperatively for the purpose of increasing gastric motility.

- ☐ There is physician/APN/PA documentation within 2 days (3 days for CABG or Other Cardiac Surgery) following the principal procedure with the day of surgery being day zero that an antibiotic was administered postoperatively for the treatment of hepatic encephalopathy.
- ☐ There is physician/APN/PA documentation within 2 days (3 days for CABG or Other Cardiac Surgery) following the principal procedure with the day of surgery being day zero that an antibiotic was administered postoperatively as prophylaxis of Pneumocystis pneumonia (PCP) to a patient with a diagnosis of AIDS.
- ☐ There is physician/APN/PA documentation within 2 days (3 days for CABG or Other Cardiac Surgery) following the principal procedure with the day of surgery being day zero that the patient had an infection.
- ☐ There is physician/APN/PA documentation within 2 days following the principal procedure with the day of surgery being day zero that the patient has a current malignancy of the lower extremity involving the same extremity as the principal procedure that was an original arthroplasty or a joint revision surgery.
- ☐ There is documentation within 2 days following the principal procedure with the day of surgery being day zero that the principal procedure was a joint revision surgery.
- ☐ No documented reason/Unable to Determine.

27. **What method of surgical site hair removal was performed prior to the principal procedure? (PREOPHRREM)** ***(Select all that apply)***

- ☐ No documented hair removal or no hair removal performed
- ☐ Razor
- ☐ Clippers/Scissors
- ☐ Depilatory
- ☐ Other
- ☐ Patient performed their own hair removal
- ☐ Unable to determine method
- ☐ Hair removal with a razor from the scrotal area OR from the scalp after a current traumatic head injury

28. Was there documentation that the procedure was performed using general or neuraxial anesthesia? (ANESTTYPE)

- ☐ There is documentation that the procedure was performed using general anesthesia.
- ☐ There is documentation that the procedure was performed using neuraxial anesthesia.
- ☐ There is documentation that the procedure was performed using **both** neuraxial and general anesthesia.
- ☐ There is no documentation that the procedure was performed using either general or neuraxial anesthesia or unable to determine from the medical record documentation.

29. Was there documentation that intentional hypothermia was utilized during the perioperative period? (INTENTHYPO)

☐ Yes
☐ No

30. Was there documentation of active warming used intraoperatively OR at least one body temperature equal to or greater than 96.8 degrees F/36 degrees C within the 30 minutes immediately prior to or the 15 minutes immediately after *Anesthesia End Time* in the medical record?(TEMPERATURE) *(Select all that apply)*

☐ 1 Active warming was performed intraoperatively.
☐ 2 There is documentation of at least one body temperature greater than or equal to 96.8 degrees F/36 degrees C within the 30 minutes immediately prior to or the 15 minutes immediately after Anesthesia End Time.
☐ 3 There is no documentation of Allowable Values 1 AND 2.
☐ 4 Unable to determine from the medical record documentation.

31. Is there documentation that the patient had a urinary catheter paced in the perioperative timeframe and that it was still in place at the time of discharge from the recovery/post-anesthesia care area? (URINECATH)

☐ There is documentation that an indwelling urethral catheter was placed perioperatively and was still in place at the time of discharge from the recovery/post-anesthesia care area.
☐ There is no documentation that an indwelling urethral catheter was placed perioperatively and was still in place at the time of discharge from the recovery/post-anesthesia care area.
☐ There is documentation that the patient had an indwelling urethral or suprapubic catheter or was being intermittently catheterized prior to the perioperative timeframe.
☐ There is documentation that the patient had a suprapubic catheter placed perioperatively and was still in place at the time of discharge from the recovery/post-anesthesia care area or the patient was being intermittently catheterized during the perioperative period.
☐ Unable to determine whether the patient had a catheter in place from medical record documentation.

32. Is there documentation that the urinary catheter was removed on POD 0 through POD 2 with the *Anesthesia End Date* being POD 0? (CATHREMOVE)

☐ There is documentation that the urinary catheter was removed on POD 0 through POD 2.
☐ There is no documentation that the urinary catheter was removed on POD 0 through POD 2.
☐ Unable to determine (UTD) from medical record documentation whether the urinary catheter was removed on POD 0 through POD 2.

33. Was there documentation of reason(s) for not removing the urinary catheter postoperatively? (REASONCNTCATH)

- ☐ There is documentation that the patient was in the intensive care unit (ICU) AND receiving diuretics.
- ☐ There is physician/advanced practice nurse/physician assistant (physician/APN/PA) documentation of reasons for not removing the urinary catheter postoperatively.
- ☐ There is no physician/APN/PA documentation of reasons for not removing the urinary catheter postoperatively or unable to determine from medical record documentation.

34. Is there documentation that the patient was on a daily beta-blocker therapy prior to arrival? (BBLKRCURRENT)

- ☐ Yes
- ☐ No

35. Was the patient taking the beta-blocker prior to arrival pregnant? (BBLKRPREG)

- ☐ Yes
- ☐ No
- ☐ UTD

36. Is there documentation that a beta-blocker was received during the perioperative period? (BBLKRPERIOP)

- ☐ Yes
- ☐ No

37. Was there documentation of reasons for not administering a beta-blocker during the perioperative period? (CTRBBLKPERIOP)

- ☐ Yes
- ☐ No

38. Is there documentation by a physician/advanced practice nurse/physician assistant (physician/APN/PA) or pharmacist in the medical record of a reason for not administering pharmacological and/or mechanical VTE prophylaxis? (CONTRAVTEPRO)

- ☐ There is physician/APN/PA or pharmacist documentation of a reason for not administering mechanical VTE prophylaxis.
- ☐ There is physician/APN/PA or pharmacist documentation of a reason for not administering pharmacological VTE prophylaxis.
- ☐ There is physician/APN/PA or pharmacist documentation of a reason for not administering both mechanical and pharmacological VTE prophylaxis.
- ☐ There is no physician/APN/PA or pharmacist documentation of a reason for not administering either mechanical or pharmacological VTE prophylaxis or unable to determine from medical record documentation.

39. **What type of VTE prophylaxis was documented in the medical record? (Collect any VTE prophylaxis that was ordered at anytime from hospital arrival to 24 hours after Anesthesia End time). (VTEPROA)**

VTE Prophylaxis Ordered (VTEPROPH) *(Select all that apply)*	**Was VTE Prophylaxis Timely? (VTETIMELY)**
☐ Low dose unfractionated heparin (LDUH)	☐ Yes ☐ No
☐ Low molecular weight heparin (LMWH)	☐ Yes ☐ No
☐ Intermittent pneumatic compression devices (IPC)	☐ Yes ☐ No
☐ Graduated compression stocking (GCS)	☐ Yes ☐ No
☐ Factor Xa Inhibitor	☐ Yes ☐ No
☐ Warfarin	☐ Yes ☐ No
☐ Venous foot pumps (VFP)	☐ Yes ☐ No
☐ Oral Factor Xa Inhibitor	☐ Yes ☐ No
☐ None of the above or not documented or unable to determine from medical record documentation	☐ Yes ☐ No

40. Did the patient have any allergies, sensitivities or intolerance to beta-lactam/penicillin antibiotic or cephalosporin medications? (ANTIALLERGY)

☐ Yes
☐ No

41. **What reason was documented for using vancomycin? (VANCO)**

(Select all that apply)

- ☐ Documentation of beta-lactam (penicillin or cephalosporin) allergy.
- ☐ Physician/APN/PA or pharmacist documentation of MRSA colonization or infection.
- ☐ Documentation of patient being high-risk due to acute inpatient hospitalization within the last year.
- ☐ Documentation of patient being high-risk due to nursing home or extended care facility setting within the last year, prior to admission.
- ☐ Physician/APN/PA or pharmacist documentation of increased MRSA rate, either facility-wide or operation-specific.
- ☐ Physician/APN/PA or pharmacist documentation of chronic wound care or dialysis.
- ☐ Documentation of continuous inpatient stay more than 24 hours prior to the principal procedure.
- ☐ Other Physician/APN/PA or pharmacist documented reason.
- ☐ No documented reason/Unable to Determine.
- ☐ Physician/APN/PA or pharmacist documentation of patient undergoing valve surgery.
- ☐ Documentation of patient being transferred from another inpatient hospitalization after a 3-day stay.

42. What was the patient's blood glucose level on postoperative day one (POD 1) closest to 6:00 A.M.? (GLUPOD1)

_____ (1-3000 mg per dL)

☐ UTD

43. What was the patient's blood glucose level on postoperative day two (POD 2) closest to 6:00 A.M.? (GLUPOD2)

_____ (1-3000 mg per dL)

☐ UTD

44. What is the first physician identifier? (PHYSICIAN_1)

_____

45. What is the second physician identifier? (PHYSICIAN_2)

_____

This material was prepared by the IFMC (Hospital Inpatient Quality Reporting Program Contractor) under contract with the Centers for Medicare & Medicaid Service (CMS), an agency of the US Department of Health and Human Services. It is based on *The Specifications Manual for National Hospital Inpatient Quality Measures*, which is a collaborative effort of CMS, The Joint Commission, SDPS, and the Hospital Inpatient Quality Reporting Program Contractor. 9SoW-IA-HIQRP-09/10-106

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0528 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Prophylactic antibiotic selection for surgical patients
De.2 **Brief description of measure***:* Surgical patients who received prophylactic antibiotics consistent with current guidelines (specific to each type of surgical procedure).
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure**
De.4 **National Priority Partners Priority Area:** Safety De.5 **IOM Quality Domain**: Safety De.6 **Consumer Care Need:** Staying healthy

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐

C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accountability, Payment incentive, Accreditation	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Frequently performed procedure, High resource use, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Surgical site infection (SSIs) are the second most common cause of healthcare associated infections.SSIs account for 14-16% of all hospital-acquired infections and are among the most common complications of care, occurring in 2 to 5% of patients after clean extra-abdominal operations and up to 20 % of intra-abdominal procedures. Among surgical patients, SSIs account for 40% of all such hospital-acquired infections. By reducing SSIs, hospitals on average could recognize a savings of $3,152 and a reductions in extended length of stay by seven days on each patient developing an infection. 1a.4 **Citations for Evidence of High Impact:** Selected References: Zhan C, Miller MR. Excess length of stay, charges and mortality attributable to medical injuries during hospitalization. JAMA 2003; 290: 1868-1874. Delgado-Rodriguez M, Sillero-Arenas M, Medina-Cuadros M, Martinez-Gallego G. Nosocomial infections in surgical patients: comparison of two measures of intrinsic patient risk. Infect Control Hosp Epidemiol 1997; 18: 19-23. Polk HC, Christmas AB. Prophylactic antibiotics in surgery and surgical wound infections. Am Surg 200; 66: 105-111.	**1a** C☐ P☐ M☐ N☐
1b. Opportunity for Improvement	**1b** C☐

1b.1 Benefits (improvements in quality) envisioned by use of this measure: An increase in the number of patients having antibiotic administration according to guidelines may reduce the incidence of surgical site infection.

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
The rates for appropriate antibiotic selection from a national sample of 39,000 Medicare patients undergoing surgery in 2001 (baseline) showed that antibiotics according to guidelines were administered 92.6% of the time. In the second quarter of 2010 (most recent data available), the national rate was 97.6%. A trend report is provided as an attachment to this document.

1b.3 Citations for data on performance gap:
The most recent data available (2Q 2010) used a sample of 3566 hospitals reporting data to the clinical warehouse. The denominator included 282,017 cases; the numerator 275,297. This is hospital submitted data to the clinical data warehouse.

1b.4 Summary of Data on disparities by population group:
A disparities report is attached to this submission.

1b.5 Citations for data on Disparities:
The attached disparities report uses 2009 data from the clinical data warehouse.

P☐ M☐ N☐

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** The lowest incidence of postoperative infection is associated with antibiotic administration according to guidelines.

1c.2-3. Type of Evidence: Evidence-based guideline, Randomized controlled trial, Systematic synthesis of research

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
The lowest incidence of postoperative infection is associated with antibiotic administration according to guidelines. The antibiotic regimens utilized in the measure specifications reflect the combined, published recommendations of the American Society of Health-System Pharmacists, The Medical Letter, the Infectious Diseases Society of America, the Sanford Guide to Antimicrobial Therapy and the Surgical Infection Society.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**
Various-These guidelines use levels of evidence as well as grades of recommendations.

1c.6 Method for rating evidence: Classes/levels:
Level A: Data derived from multiple randomized clinical trials
Level B: Data derived from a single randomized trial or from nonrandomized trials
Level C: Consensus expert opinion
Classification of Recommendations
Class I: Conditions for which there is evidence and/or general agreement that a given procedure is useful and effective
Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of a procedure
IIa: Weight of evidence favors usefulness/efficacy.
IIb: Usefulness/efficacy is less well established by evidence.
Class III: Conditions for which there is evidence and/or general agreement that the procedure is not useful/effective

1c.7 Summary of Controversy/Contradictory Evidence: No contradictory evidence.

1c.8 Citations for Evidence (*other than guidelines***):** 1. Bratzler DS, Houck PM for the Surgical Infection Prevention Guideline Writers Workgroup. Antimicrobial prophylaxis for surgery: An advisory statement from

1c
C☐ P☐ M☐ N☐

the National Surgical Infection Prevention Project. CID 2004; 38: 1706-1715.
2. Dellinger EP, Gross PA, Barrett TL, et al. Quality standard for antimicrobial prophylaxis in surgical procedures. Clin Inf Dis 1994; 18:422-427.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number***):**
Summary of published guidelines on antimicrobial prophylaxis for operations targeted for surveillance in the National Surgical Infection Prevention Project. The authors of the guidelines are represented by symbols and listed below the recommendations.

Cardiothoracic surgery:
Cefazolin†, ‡, §, ¶, #
Cefuroxime§, _, ¶
Vancomycin with documented justification for use
If beta-lactam allergy:
vancomycin†, ‡, §, _, ¶
clindamycin#

Vascular surgery:
Cefazolin†, ‡, §, _, ¶
Cefuroxime¶
If beta-lactam allergy:
Vancomycin†, ‡, §, _, ¶, #
Vancomycin§
Clindamycin#

Colon surgery
Parenteral:
Cefoxitin or cefotetan†, ‡, §, _, ¶
Ampicillin/Sulbactam_, ¶
Ertapenem ¶
Cefazolin plus metronidazole_, ¶
If beta-lactam allergy:
Clindamycin plus aminoglycoside or aztreonam
Metronidazole plus aminoglycosde or quinolone #

Hip or knee arthroplasty
Cefazolin†, ‡, §, _, ¶
Cefuroxime¶
If beta-lactam allergy:
Vancomycin†, ‡, §, _, ¶
Clindamycin#

Vaginal or abdominal hysterectomy
Cefazolin†, ‡, §, _, ¶, ††
Cefotetan§, _, ¶, ††
Cefoxitin§, _, ¶, ††
Cefuroxime¶
If beta-lactam allergy:
Clindamycin plus aminoglycoside or quinolone or aztreonam ††
Metronidazole plus aminoglycoside or quinolone††

† Surgical Infection Society Antimicrobial Agents Committee.
‡ Infectious Diseases Society of America Quality Standards Subcommittee of the Clinical Affairs Committee
§ ASHP Commission on Therapeutics
_ Medical Letter on Drugs and Therapeutics
¶ The Sanford Guide to Antimicrobial Therapy, 2009
# HICPAC recommends either clindamycin or vancomycin as alternatives for gram- positive bacterial

coverage if a patient is unable to receive a cephalosporin because of beta-lactam allergy.
†† ACOG Committee on Practice Bulletins
# Johns Hopkins Online Guide for Surgical Prophylaxis

1c.10 Clinical Practice Guideline Citation: . Mangram AJ, Horan TC, Pearson ML, et al. Guidelines for prevention of surgical site infection, 1999. Infect Control Hosp Epidemiol 1999; 20: 247- 280.
2. American Society of Health-System Pharmacists. ASHP therapeutic guidelines on antimicrobial prophylaxis in surgery. Am J Health Syst Pharm 1999; 56: 1839-1888.
3. No author listed. Treatment Guidelines from The Medical Letter. Antimicrobial Prophylaxis for Surgery. Med Lett Drugs Ther 2009; 7 (82): 47-52.
4. American College of Obstetricians and Gynecologists (ACOG) Committee on Practice Bulletins. ACOG Practive Bulletin No. 104. Antibiotic prophylaxis for gynecologic procedures. Obstet Gynecol May 2009; 113(5): 1180-1189.
5. Gilbert DN, Moellering RC Jr., Sande MA, eds. The Sanford Guide to Antimicrobial Therapy. 44th ed. Hyde Park, VT: Antimicrobial Therapy, Inc; 2010.
6. Anderson DJ, Kaye KS, Classen D, Arias KM, Podgorny K, Burstin H, Calfee DP, Coffin SE, Dubberke ER, Fraser V, Gerding DN, Griffin FA, Gross P, Klompas M, Lo E, Marschall J, Mermel LA, Nicolle L, Pegues DA, Perl TM, Saint S, Salgado CD, Weinstein RA, Wise R, Yokoe DS. Strategies to prevent surgical site infections in acute care hospitals. Infect Control Hosp Epidemiol 2008 Oct;29 Suppl 1:S51-61
7. Bartlett JG, Auwaerter PG, Pham PA. The Abx Guide: Diagnosis & Treatment of Infectious Diseases. 3rd ed. Montvale, NJ: Thomson PDR; 2010.
1c.11 National Guideline Clearinghouse or other URL: ASHP: http://www.ashp.org/s_ashp/docs/files/BP07/TG_Surgical.pdf

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom***):**
ASHP provides a strength of evidence of A for antibiotic use.

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*:
From ASHP: "...antimicrobial selection is based on cost, adverse-effect profile, ease of administration, pharmacokinetic profile, and antibacterial activity. The agent chosen should have activity against the most common surgical wound pathogens. For clean-contaminated operations, the agent of choice should be effective against common pathogens found in the GI and GU tracts. In clean operations, the gram-positive cocci—S. aureus and S. epidermidis—predominate. For most procedures, cefazolin should be the agent of choice because of its relatively long duration of action, its effectiveness against the organisms most commonly encountered in surgery, and its relatively low cost."

1c.14 Rationale for using this guideline over others:
This measure utilizes several guidelines.

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	

S.1 Do you have a web page where current detailed measure specifications can be obtained?
S.2 If yes, provide web page URL:

2a. Precisely Specified

2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome*):
Surgical patients who received recommended prophylactic antibiotics for specific surgical procedures

2a.2 Numerator Time Window (*The time period in which cases are eligible for inclusion in the numerator*):
Admission to 24 hours after Anesthesia End Time

2a.3 Numerator Details (*All information required to collect/calculate the numerator, including all codes, logic, and definitions*):
Data Elements:
Antibiotic Administration Route
Antibiotic Allergy
Antibiotic Name
Oral Antibiotics
Vancomycin

2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured*):
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).

2a.5 Target population gender: Female, Male
2a.6 Target population age range: patients aged 18 or older

2a.7 Denominator Time Window (*The time period in which cases are eligible for inclusion in the denominator*):
admission to discharge

2a.8 Denominator Details (*All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions*):
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

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population*): Excluded

2a-specs
C☐
P☐
M☐
N☐

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

2a.10 **Denominator Exclusion Details (***All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
Data Elements:
Birthdate
Clinical Trial
ICD-9-CM Principal Diagnosis Code
Infection Prior to Anesthesia
Laparoscope
Perioperative Death

2a.11 **Stratification Details/Variables (***All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
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.

2a.12-13 **Risk Adjustment Type:** No risk adjustment necessary

2a.14 **Risk Adjustment Methodology/Variables (***List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
NA

2a.15-17 **Detailed risk model available Web page URL or attachment:**

2a.18-19 **Type of Score:** Rate/proportion
2a.20 **Interpretation of Score:** Better quality = Higher score
2a.21 **Calculation Algorithm (***Describe the calculation of the measure as a flowchart or series of steps***):**
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 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.
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 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 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 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 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.
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.
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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 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 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

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
The SCIP Topic Population (common to all SCIP measures) is defined as patients admitted to the hospital for inpatient acute care with an ICD-9-CM Principal Procedure Code for SCIP as defined in Appendix A, Table 5.10 and a Length of Stay (Discharge Date - Admission Date) <= 120 days. There are eight distinct strata or sub-populations within the SCIP Topic Population, each identified by a specific group of procedure codes. The patients in each stratum are counted in the Initial Patient Population of multiple measures.

The following sample size tables for each option automatically build in the number of cases needed to obtain the required sample sizes.

Quarterly Sampling
For hospitals selecting sample cases for SCIP, a modified sampling procedure is required. Hospitals selecting sample cases for this set must ensure that each individual stratum’s population and quarterly sample size meets the following conditions:
- Select within each of the seven individual measure stratum (e.g., colorectal surgery, hip arthroplasty, etc.) and the 8th SCIP stratum (Table 5.25 in Appendix A).

Quarterly Sample Size

Based on Initial Patient Population Size for the SCIP Measure Set

Hospital's Measure
Average Quarterly
Stratum Initial Patient Population Size
"N" Minimum Required
Stratum Sample Size
"n"
>/= 481 49
171-480 10% of Initial Patient Population size
17-170 17
< 17 No sampling; 100% Initial Patient Population required

Monthly Sampling
For hospitals selecting sample cases for SCIP, a modified sampling procedure is required. Hospitals selecting sample cases for this set must ensure that each individual strata population and monthly sample size meets the following conditions:
• Select within each of the seven individual measure stratum (e.g., colorectal surgery, hip arthroplasty, etc.) and the 8th SCIP stratum (Table 5.25 in Appendix A).

Monthly Sample Size
Based on Initial Patient Population Size for the SCIP Measure Set

Hospital's Measure
Average Monthly
Stratum Initial Patient Population Size
"N" Minimum Required
Stratum Sample Size
"n"
>/= 151 16
61-150 10% of Initial Patient Population size
6-60 6
<6 No sampling; 100% Initial Patient Population required

All of the SCIP measures´ specific exclusion criteria are used to filter out cases that do not belong in the measure denominator.

2a.24 **Data Source (***Check the source(s) for which the measure is specified and tested)*
Paper medical record/flow-sheet, Electronic administrative data/claims, Electronic Health/Medical Record

2a.25 **Data source/data collection instrument (***Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
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

2a.26-28 **Data source/data collection instrument reference web page URL or attachment:** Attachment SCIPCARTpapertool_10.01.10-634330259475752280.doc

2a.29-31 **Data dictionary/code table web page URL or attachment:** URL http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228754600169

2a.32-35 **Level of Measurement/Analysis** (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency, Population: national, Program: QIO, Can be measured at all levels

2a.36-37 **Care Settings (***Check the setting(s) for which the measure is specified and tested)*

Hospital

2a.38-41 **Clinical Services** (*Healthcare services being measured, check all that apply*)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 **Data/sample** *(description of data/sample and size)*: This measure is in use for the Hospital Inpatient Quality Reporting Program. For Q2 2010, the national rate was 97.6%. The number of facilities reporting: 3,566. The number of cases in the denominator: 282,017. The number of cases in the numerator: 275,297.

2b.2 **Analytic Method** *(type of reliability & rationale, method for testing)*:
Measure has been in use since 2001 and has been continually collected nationally for the Hospital Inpatient Quality Reporting Program since Jan 2007. A predetermined number of charts are requested and submitted to an independent abstraction/validation contractor quarterly. Mismatches are calculated and reported to facilities and are used to determine eligibility for incentives. Facilities must achieve an 80% agreement with CDAC abstractors in addition to agreeing to report measure rates on Hospital Compare.

2b.3 **Testing Results** *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
Feedback from the hospital abstractors and the independent validation team is collected and incorporated. Reports on mismatches between national abstractors and the independent abstraction/validation contractor are reviewed quarterly. Revisions to data elements are made accordingly.

2b C☐ P☐ M☐ N☐

2c. Validity testing

2c.1 **Data/sample** *(description of data/sample and size)*: Review of relevant guidelines and studies is performed quarterly with a Technical Expert Panel. Antibiotic selection guidelines are reviewed during quarterly TEP teleconfereces. Specifications (including codes, new antibiotics and data elements) are modified every six months according to feedback provided by clinicians and hospital staff collecting data for the measure, as well as guideline updates. National performance of the measure is monitored by the measure steward with quarterly benchmarks of hospital submitted data developed for distribution to QIOs. Trend reports are also prepared and reviewed. The measure is collecting the information it was designed to collect.

2c.2 **Analytic Method** *(type of validity & rationale, method for testing)*:
Face validity is systematically assessed by the Technical Expert Panels and the measure is judged to assess the provision of appropriate care for the target population.

2c.3 **Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
The measure is collecting the information it was designed to collect, according to expert panel review.

2c C☐ P☐ M☐ N☐

2d. Exclusions Justified

2d.1 **Summary of Evidence supporting exclusion(s):**
The exclusions used in this measure are the exclusions used for all SCIP measures and are reviewed by the Technical Expert Panel as needed.

2d.2 **Citations for Evidence:**
NA

2d.3 **Data/sample** *(description of data/sample and size)*: NA

2d.4 **Analytic Method** *(type analysis & rationale)*:
NA

2d.5 **Testing Results** *(e.g., frequency, variability, sensitivity analyses)*:

2d C☐ P☐ M☐ N☐ NA☐

NA	
2e. Risk Adjustment for Outcomes/ Resource Use Measures **2e.1 Data/sample** *(description of data/sample and size)*: NA **2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*: NA **2e.3 Testing Results** *(risk model performance metrics)*: NA **2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:** This is a process measure.	**2e** C☐ P☐ M☐ N☐ NA ☐
2f. Identification of Meaningful Differences in Performance **2f.1 Data/sample from Testing or Current Use** *(description of data/sample and size)*: Measure rate trends are reviewed every quarter, using a rolling 5 quarters of national hospital submitted data. **2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Analysts review quarterly benchmarks and trends to identify differences in performance scores and investigate the possible causes. If measure specifications (algorithms, data elements) are causing the difference in performance, they are reviewed for possible updates by the subject matter experts. This measure has had consistent rates of performance the last several quarters. **2f.3 Provide 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)*: A trends report is provided with this submission.	**2f** C☐ P☐ M☐ N☐
2g. Comparability of Multiple Data Sources/Methods **2g.1 Data/sample** *(description of data/sample and size)*: Currently, this measure is collected from the medical record. The medical record can be paper or an EHR. No analysis between chart-abstracted and eMeasure collection has been performed because the eMeasure specifications have not been implemented at this time. **2g.2 Analytic Method** *(type of analysis & rationale)*: NA **2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*: NA	**2g** C☐ P☐ M☐ N☐ NA ☐
2h. Disparities in Care **2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: An updated disparities report has been submitted to NQF for review. Data on the range of performance values by decile for the hospital process measures was provided also. **2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:** All of the inpatient quality reporting measures collect this information: Birthdate, Hispanic Ethnicity, Payment Source, Race and Sex. Additional analysis was performed to determine disparities in US region and urban vs rural.	**2h** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met?	**2** C☐

Rationale:	**P☐ M☐ N☐**
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information 3a.1 **Current Use:** In use 3a.2 **Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** The measure is currently in use for the Hospital Inpatient Quality Reporting Program under CMS. To receive the APU from Medicare, hospitals agree to report their data and have their measure rates reported on Hospital Compare. http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier1&cid=1121785350606 3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** This measure is also used in the accreditation process for the Joint Commission. It is part of the SCIP measure set, which facilities can choose to report for accreditation purposes. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) 3a.4 **Data/sample** *(description of data/sample and size)***:** The measures rates are reported on the website Hospital Compare. 3a.5 **Methods** *(e.g., focus group, survey, QI project)***:** Data about interpretability of reported measure rates are collected by the CMS contractor responsible for maintaining Hospital Compare. Data is collected voluntarily via survey of website users. 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)***:** NA	**3a C☐ P☐ M☐ N☐**
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:** #527 and #529	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): 3b.2 **Are the measure specifications harmonized? If not, why?** Yes, many of the same data elements are used, as this measure is part of the SCIP set.	**3b C☐ P☐ M☐ N☐ NA ☐**
3c. Distinctive or Additive Value 3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** The antibiotic prophylaxis measures are collected as a set. 5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the**	**3c C☐ P☐ M☐ N☐ NA**

same target population), Describe why it is a more valid or efficient way to measure quality: NA	☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** **C☐** **P☐** **M☐** **N☐**
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes 4a.1-2 **How are the data elements that are needed to compute measure scores generated?** Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** **C☐** **P☐** **M☐** **N☐**
4b. Electronic Sources 4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No 4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.** This measure has been retooled for EHRs but has not been tested.	**4b** **C☐** **P☐** **M☐** **N☐**
4c. Exclusions 4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No 4c.2 **If yes, provide justification.**	**4c** **C☐** **P☐** **M☐** **N☐** **NA** ☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences 4d.1 **Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** Interpretation of data elements will always be a factor, since the instructions for obtaining the data are written by the measure developers. No unintended consequences have been identified with the antibiotic selection measure.	**4d** **C☐** **P☐** **M☐** **N☐**
4e. Data Collection Strategy/Implementation 4e.1 **Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Specifications (including codes and data elements) are modified every six months according to feedback provided by clinicians and hospital staff collecting data for the measure. Data is available in the medical record and there are no feasibility or implementation issues identified. 4e.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** The cost associated with measure use is that of data collection only. Many facilities employ quality improvement staff to perform data abstraction and entry. The same employees may develop reports and provide information to clinicians and hospital administration.	**4e** **C☐** **P☐** **M☐** **N☐**

4e.3 Evidence for costs: No studies have been performed on the cost of implementation. **4e.4 Business case documentation:** NA	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**

CONTACT INFORMATION

Co.1 Measure Steward (Intellectual Property Owner)
Co.1 Organization
Centers for Medicare & Medicaid Services, 7500 Security Boulevard , Mail Stop S3-01-02, Baltimore, Maryland, 21244-1850

Co.2 Point of Contact
Kristie, Baus, RN, MS, kristie.baus@cms.hhs.gov, 410-786-8161-

Measure Developer If different from Measure Steward
Co.3 Organization
Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-01-02, Baltimore, Maryland, 21244-1850

Co.4 Point of Contact
Kristie, Baus, RN, MS, kristie.baus@cms.hhs.gov, 410-786-8161-

Co.5 Submitter If different from Measure Steward POC
Wanda, Johnson, RN, wjohnson@ofmq.com, 405-302-3278-, Oklahoma Foundation for Medical Quality

Co.6 Additional organizations that sponsored/participated in measure development
This measure is aligned with the Joint Commission.

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development
Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.
The Surgical Care Improvement Project´s Infection TEP was involved in this measure´s development and remains involved in its maintenance.

Ad.2 If adapted, provide name of original measure:
Ad.3-5 If adapted, provide original specifications URL or attachment

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released: 2001
Ad.7 Month and Year of most recent revision: 10, 2010
Ad.8 What is your frequency for review/update of this measure? Every 6 months
Ad.9 When is the next scheduled review/update for this measure? 04, 2011

Ad.10 Copyright statement/disclaimers: Trend Report (BM= Benchmark, rate = national score) Q209 BM: 99.8 Rate: 97.7 Q309 BM: 99.9 Rate 97.9 Q409 BM: 99.8 Rate 96.9 Q110 BM: 99.8 Rate 97.3 Q210 BM: 99.9 Rate 97.6
Ad.11 -13 Additional Information web page URL or attachment: Attachment IP Measures Disp_2009-634369270365209565.xls
Date of Submission (*MM/DD/YY*)**:** 03/28/2011

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Race/Ethnicity (3% of cases were excluded due to missing data on race/ethnicity)

Measures and Race/ethnicity group	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
Caucasian	247,145	251,158	98.4	ref.	ref.
African-American	36,868	37,747	97.7	0.68 (0.63-0.73)	<0.001
Hispanic	26,561	27,316	97.2	0.57 (0.53-0.62)	<0.001
Asian/Pacific Islander	7,346	7,472	98.3	0.95 (0.79-1.13)	0.548
Native American	1,074	1,087	98.8	1.34 (0.78-2.32)	0.293
AMI2: Aspirin at discharge					
Caucasian	305,754	310,489	98.5	ref.	ref.
African-American	39,545	40,591	97.4	0.59 (0.55-0.63)	<0.001
Hispanic	27,791	28,805	96.5	0.42 (0.40-0.45)	<0.001
Asian/Pacific Islander	7,694	7,854	98.0	0.74 (0.64-0.87)	<0.001
Native American	1,908	1,935	98.6	1.09 (0.75-1.60)	0.643
AMI3: ACEI or ARB for LVSD					
Caucasian	54,767	57,482	95.3	ref.	ref.
African-American	8,642	9,024	95.8	1.12 (1.01-1.25)	0.040
Hispanic	5,591	5,896	94.8	0.91 (0.80-1.03)	0.123
Asian/Pacific Islander	1,302	1,372	94.9	0.92 (0.72-1.18)	0.514
Native American	371	393	94.4	0.84 (0.54-1.29)	0.416
AMI4: Smoking cessation counseling					
Caucasian	103,977	104,611	99.4	ref.	ref.
African-American	16,611	16,741	99.2	0.78 (0.64-0.94)	0.010
Hispanic	7,671	7,757	98.9	0.54 (0.43-0.68)	<0.001
Asian/Pacific Islander	1,720	1,747	98.5	0.39 (0.26-0.57)	<0.001
Native American	753	767	98.2	0.33 (0.19-0.56)	<0.001
AMI5: Beta-blocker at discharge					
Caucasian	298,954	304,013	98.3	ref.	ref.
African-American	39,112	40,008	97.8	0.74 (0.69-0.79)	<0.001
Hispanic	27,331	28,382	96.3	0.44 (0.41-0.47)	<0.001

Asian/Pacific Islander	7,602	7,738	98.2	0.95 (0.80-1.12)	0.526
Native American	1,841	1,882	97.8	0.76 (0.56-1.04)	0.083
AMI7a: Fibrinolytic within 30 minutes					
Caucasian	651	1,169	55.7	ref.	ref.
African-American	73	157	46.5	0.69 (0.50-0.97)	0.030
Hispanic	190	417	45.6	0.67 (0.53-0.83)	<0.001
Asian/Pacific Islander	36	61	59.0	1.15 (0.68-1.93)	0.610
Native American	1	3	33.3	0.40 (0.04-4.40)	0.452
AMI8a: PCI within 90 minutes					
Caucasian	38,044	43,171	88.1	ref.	ref.
African-American	3,448	4,234	81.4	0.59 (0.54-0.64)	<0.001
Hispanic	3,297	3,936	83.8	0.70 (0.64-0.76)	<0.001
Asian/Pacific Islander	1,079	1,237	87.2	0.92 (0.78-1.09)	0.337
Native American	160	189	84.7	0.74 (0.50-1.11)	0.143
HF1: Discharge instructions					
Caucasian	357,746	414,742	86.3	ref.	ref.
African-American	124,070	143,689	86.3	1.01 (0.99-1.03)	0.400
Hispanic	44,786	51,690	86.6	1.03 (1.01-1.06)	0.016
Asian/Pacific Islander	9,895	11,375	87.0	1.07 (1.01-1.13)	0.025
Native American	2,351	3,083	76.3	0.51 (0.47-0.56)	<0.001
HF2: Evaluation of LV function					
Caucasian	521,142	535,940	97.2	ref.	ref.
African-American	159,661	163,219	97.8	1.27 (1.23-1.32)	<0.001
Hispanic	55,388	57,714	96.0	0.68 (0.65-0.71)	<0.001
Asian/Pacific Islander	12,720	13,004	97.8	1.27 (1.13-1.43)	<0.001
Native American	3,201	3,416	93.7	0.42 (0.37-0.49)	<0.001
HF3: ACEI or ARB for LVSD					
Caucasian	145,067	155,808	93.1	ref.	ref.
African-American	66,217	69,597	95.1	1.45 (1.39-1.51)	<0.001
Hispanic	18,769	20,068	93.5	1.07 (1.01-1.14)	0.026
Asian/Pacific Islander	3,777	3,962	95.3	1.51 (1.30-1.75)	<0.001
Native American	1,173	1,278	91.8	0.83 (0.68-1.01)	0.064
HF4: Smoking cessation counseling					
Caucasian	76,177	77,858	97.8	ref.	ref.

African-American	44,071	44,760	98.5	1.41 (1.29-1.54)	<0.001
Hispanic	7,273	7,423	98.0	1.07 (0.90-1.27)	0.432
Asian/Pacific Islander	1,375	1,413	97.3	0.80 (0.58-1.11)	0.176
Native American	692	732	94.5	0.38 (0.28-0.53)	<0.001
PN2: Pnemococal vaccination given or screened for					
Caucasian	378,259	408,034	92.7	ref.	ref.
African-American	34,705	39,186	88.6	0.61 (0.59-0.63)	<0.001
Hispanic	24,135	28,528	84.6	0.43 (0.42-0.45)	<0.001
Asian/Pacific Islander	8,804	9,900	88.9	0.63 (0.59-0.67)	<0.001
Native American	2,310	2,640	87.5	0.55 (0.49-0.62)	<0.001
PN3a: Initial blood culture within 24 hours - ICU only					
Caucasian	78,108	82,387	94.8	ref.	ref.
African-American	12,551	13,078	96.0	1.30 (1.19-1.43)	<0.001
Hispanic	7,338	7,863	93.3	0.77 (0.70-0.84)	<0.001
Asian/Pacific Islander	2,199	2,271	96.8	1.67 (1.32-2.12)	<0.001
Native American	776	846	91.7	0.61 (0.47-0.78)	<0.001
PN3b: Initial blood culture before first antibiotic dose - ED only					
Caucasian	361,802	380,083	95.2	ref.	ref.
African-American	56,541	60,416	93.6	0.74 (0.71-0.76)	<0.001
Hispanic	34,169	37,132	92.0	0.58 (0.56-0.61)	<0.001
Asian/Pacific Islander	9,388	9,889	94.9	0.95 (0.86-1.04)	0.240
Native American	3,058	3,402	89.9	0.45 (0.40-0.50)	<0.001
PN4: Smoking cessation counseling					
Caucasian	153,759	158,876	96.8	ref.	ref.
African-American	30,859	31,710	97.3	1.21 (1.12-1.30)	<0.001
Hispanic	9,885	10,230	96.6	0.95 (0.85-1.07)	0.400
Asian/Pacific Islander	1,689	1,759	96.0	0.80 (0.63-1.02)	0.074
Native American	1,722	1,940	88.8	0.26 (0.23-0.30)	<0.001
PN5c: First antibiotic dose within 6 hours					
Caucasian	402,180	421,893	95.3	ref.	ref.
African-American	60,989	66,036	92.4	0.59 (0.57-0.61)	<0.001
Hispanic	35,145	39,094	89.9	0.44 (0.42-0.45)	<0.001
Asian/Pacific Islander	9,399	9,865	95.3	0.99 (0.90-1.09)	0.812
Native American	3,430	3,752	91.4	0.52 (0.47-0.59)	<0.001

PN6: Antibioti selection consistent with guidelines					
Caucasian	254,116	279,291	91.0	ref.	ref.
African-American	35,023	38,201	91.7	1.09 (1.05-1.13)	<0.001
Hispanic	25,350	28,361	89.4	0.83 (0.80-0.87)	<0.001
Asian/Pacific Islander	6,093	6,689	91.1	1.01 (0.93-1.10)	0.770
Native American	2,570	2,922	88.0	0.72 (0.65-0.81)	<0.001
PN7: Influenza vaccination given or screened for					
Caucasian	266,920	293,208	91.0	ref.	ref.
African-American	31,910	37,007	86.2	0.62 (0.60-0.64)	<0.001
Hispanic	18,854	22,505	83.8	0.51 (0.49-0.53)	<0.001
Asian/Pacific Islander	5,702	6,539	87.2	0.67 (0.62-0.72)	<0.001
Native American	1,927	2,405	80.1	0.40 (0.36-0.44)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
Caucasian	827,536	860,067	96.2	ref.	ref.
African-American	95,484	99,527	95.9	0.93 (0.90-0.96)	<0.001
Hispanic	60,439	64,806	93.3	0.54 (0.53-0.56)	<0.001
Asian/Pacific Islander	14,743	15,282	96.5	1.08 (0.99-1.17)	0.101
Native American	4,037	4,325	93.3	0.55 (0.49-0.62)	<0.001
SCIP2: Prophylactic antibiotic consistent with guidelines					
Caucasian	848,411	868,974	97.6	ref.	ref.
African-American	97,576	100,464	97.1	0.82 (0.79-0.85)	<0.001
Hispanic	62,778	64,991	96.6	0.69 (0.66-0.72)	<0.001
Asian/Pacific Islander	15,171	15,547	97.6	0.98 (0.88-1.08)	0.672
Native American	4,230	4,360	97.0	0.79 (0.66-0.94)	0.008
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
Caucasian	766,551	819,715	93.5	ref.	ref.
African-American	87,315	94,468	92.4	0.85 (0.83-0.87)	<0.001
Hispanic	54,461	61,420	88.7	0.54 (0.53-0.56)	<0.001
Asian/Pacific Islander	13,218	14,358	92.1	0.80 (0.76-0.85)	<0.001
Native American	3,812	4,103	92.9	0.91 (0.81-1.02)	0.116
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
Caucasian	134,822	144,908	93.0	ref.	ref.
African-American	10,742	11,722	91.6	0.82 (0.77-0.88)	<0.001
Hispanic	11,031	12,520	88.1	0.55 (0.52-0.59)	<0.001

Asian/Pacific Islander	3,437	3,773	91.1	0.77 (0.68-0.86)	<0.001
Native American	706	766	92.2	0.88 (0.68-1.15)	0.344
SCIP6: appropriate hair removal					
Caucasian	1,222,603	1,232,305	99.2	ref.	ref.
African-American	149,984	151,395	99.1	0.84 (0.80-0.89)	<0.001
Hispanic	95,326	97,273	98.0	0.39 (0.37-0.41)	<0.001
Asian/Pacific Islander	23,368	23,575	99.1	0.90 (0.78-1.03)	0.119
Native American	6,390	6,543	97.7	0.33 (0.28-0.39)	<0.001
SCIPCARD2: Perioperative period beta blocker					
Caucasian	327,860	359,462	91.2	ref.	ref.
African-American	34,505	38,004	90.8	0.95 (0.92-0.99)	0.007
Hispanic	17,805	20,128	88.5	0.74 (0.71-0.77)	<0.001
Asian/Pacific Islander	5,128	5,770	88.9	0.77 (0.71-0.84)	<0.001
Native American	1,312	1,493	87.9	0.70 (0.60-0.82)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
Caucasian	343,547	367,129	93.6	ref.	ref.
African-American	49,075	52,658	93.2	0.94 (0.91-0.98)	<0.001
Hispanic	27,199	30,224	90.0	0.62 (0.59-0.64)	<0.001
Asian/Pacific Islander	7,406	8,195	90.4	0.64 (0.60-0.69)	<0.001
Native American	1,999	2,208	90.5	0.66 (0.57-0.76)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
Caucasian	334,443	365,471	91.5	ref.	ref.
African-American	47,804	52,220	91.5	1.00 (0.97-1.04)	0.798
Hispanic	26,376	29,811	88.5	0.71 (0.69-0.74)	<0.001
Asian/Pacific Islander	7,241	8,126	89.1	0.76 (0.71-0.81)	<0.001
Native American	1,942	2,183	89.0	0.75 (0.65-0.86)	<0.001

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Gender (less than 0.1% of cases were excluded due to missing data on gender)

Measures and gender	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
Female	132,222	135,450	97.6	ref.	ref.
Male	197,136	199,829	98.7	1.79 (1.70-1.88)	<0.001
AMI2: Aspirin at discharge					
Female	150,930	154,577	97.6	ref.	ref.
Male	247,653	251,152	98.6	1.71 (1.63-1.79)	<0.001
AMI3: ACEI or ARB for LVSD					
Female	26,127	27,376	95.4	ref.	ref.
Male	47,156	49,502	95.3	0.96 (0.90-1.03)	0.269
AMI4: Smoking cessation counseling					
Female	42,885	43,241	99.2	ref.	ref.
Male	93,180	93,741	99.4	1.38 (1.21-1.58)	<0.001
AMI5: Beta-blocker at discharge					
Female	149,171	152,804	97.6	ref.	ref.
Male	240,965	244,715	98.5	1.56 (1.49-1.64)	<0.001
AMI7a: Fibrinolytic within 30 minutes					
Female	254	523	48.6	ref.	ref.
Male	730	1,347	54.2	1.25 (1.02-1.53)	0.029
AMI8a: PCI within 90 minutes					
Female	12,629	15,029	84.0	ref.	ref.
Male	35,545	40,118	88.6	1.48 (1.40-1.56)	<0.001
HF1: Discharge instructions					
Female	264,674	308,679	85.7	ref.	ref.
Male	286,692	330,544	86.7	1.09 (1.07-1.10)	<0.001
HF2: Evaluation of LV function					
Female	391,232	403,675	96.9	ref.	ref.
Male	378,142	387,472	97.6	1.29 (1.25-1.32)	<0.001
HF3: ACEI or ARB for LVSD					
Female	92,111	98,257	93.7	ref.	ref.
Male	148,513	158,409	93.8	1.00 (0.97-1.03)	0.936
HF4: Smoking cessation counseling					

Female	51,445	52,630	97.7	ref.	ref.
Male	80,801	82,294	98.2	1.25 (1.15-1.35)	<0.001
PN2: Pnemococal vaccination given or screened for					
Female	247,221	269,382	91.8	ref.	ref.
Male	212,145	231,563	91.6	0.98 (0.96-1.00)	0.042
PN3a: Initial blood culture within 24 hours - ICU only					
Female	50,079	52,932	94.6	ref.	ref.
Male	53,544	56,305	95.1	1.10 (1.05-1.17)	<0.001
PN3b: Initial blood culture before first antibiotic dose - ED only					
Female	246,104	260,181	94.6	ref.	ref.
Male	230,916	243,503	94.8	1.05 (1.02-1.08)	<0.001
PN4: Smoking cessation counseling					
Female	103,237	106,615	96.8	ref.	ref.
Male	99,296	102,754	96.6	0.94 (0.90-0.99)	0.011
PN5c: First antibiotic dose within 6 hours					
Female	272,016	288,698	94.2	ref.	ref.
Male	252,643	266,222	94.9	1.14 (1.11-1.17)	<0.001
PN6: Antibioti selection consistent with guidelines					
Female	175,954	193,373	91.0	ref.	ref.
Male	156,410	172,235	90.8	0.98 (0.96-1.00)	0.059
PN7: Influenza vaccination given or screened for					
Female	180,348	200,180	90.1	ref.	ref.
Male	153,242	170,972	89.6	0.95 (0.93-0.97)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
Female	660,133	687,675	96.0	ref.	ref.
Male	383,816	399,901	96.0	1.00 (0.98-1.02)	0.660
SCIP2: Prophylactic antibiotic consistent with guidelines					
Female	672,428	691,674	97.2	ref.	ref.
Male	398,658	406,588	98.0	1.44 (1.40-1.48)	<0.001
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
Female	613,378	657,129	93.3	ref.	ref.
Male	351,165	378,744	92.7	0.91 (0.89-0.92)	<0.001
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
Female	52,328	56,457	92.7	ref.	ref.
Male	114,589	124,004	92.4	0.96 (0.92-1.00)	0.038

SCIP6: appropriate hair removal					
Female	944,375	951,265	99.3	ref.	ref.
Male	613,124	620,263	98.8	0.63 (0.61-0.65)	<0.001
SCIPCARD2: Perioperative period beta blocker					
Female	210,810	232,468	90.7	ref.	ref.
Male	189,354	207,438	91.3	1.08 (1.05-1.10)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
Female	266,908	284,212	93.9	ref.	ref.
Male	177,139	192,153	92.2	0.76 (0.75-0.78)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
Female	260,379	282,821	92.1	ref.	ref.
Male	171,935	190,847	90.1	0.78 (0.77-0.80)	<0.001

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Age-Group

Measures and age group	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
under 65 years	141,150	142,677	98.9	ref.	ref.
65 to 74 years	69,462	70,636	98.3	0.64 (0.59-0.69)	<0.001
75 to 84 years	68,661	70,270	97.7	0.46 (0.43-0.50)	<0.001
85 or older	50,094	51,705	96.9	0.34 (0.31-0.36)	<0.001
AMI2: Aspirin at discharge					
under 65 years	188,910	191,432	98.7	ref.	ref.
65 to 74 years	86,865	88,378	98.3	0.77 (0.72-0.82)	<0.001
75 to 84 years	76,528	78,185	97.9	0.62 (0.58-0.66)	<0.001
85 or older	46,290	47,744	97.0	0.42 (0.40-0.45)	<0.001
AMI3: ACEI or ARB for LVSD					
under 65 years	30,729	31,955	96.2	ref.	ref.
65 to 74 years	16,782	17,608	95.3	0.81 (0.74-0.89)	<0.001
75 to 84 years	16,144	17,053	94.7	0.71 (0.65-0.77)	<0.001
85 or older	9,631	10,265	93.8	0.61 (0.55-0.67)	<0.001
AMI4: Smoking cessation counseling					
under 65 years	101,819	102,305	99.5	ref.	ref.
65 to 74 years	23,569	23,794	99.1	0.50 (0.43-0.59)	<0.001
75 to 84 years	8,919	9,074	98.3	0.27 (0.23-0.33)	<0.001
85 or older	1,762	1,813	97.2	0.16 (0.12-0.22)	<0.001
AMI5: Beta-blocker at discharge					
under 65 years	181,451	184,294	98.5	ref.	ref.
65 to 74 years	85,291	86,894	98.2	0.83 (0.78-0.89)	<0.001
75 to 84 years	76,749	78,361	97.9	0.75 (0.70-0.79)	<0.001
85 or older	46,654	47,979	97.2	0.55 (0.52-0.59)	<0.001
AMI7a: Fibrinolytic within 30 minutes					
under 65 years	648	1,212	53.5	ref.	ref.
65 to 74 years	194	358	54.2	1.03 (0.81-1.30)	0.810
75 to 84 years	93	202	46.0	0.74 (0.55-1.00)	0.051
85 or older	49	98	50.0	0.87 (0.58-1.31)	0.508
AMI8a: PCI within 90 minutes					
under 65 years	31,621	35,686	88.6	ref.	ref.
65 to 74 years	9,116	10,546	86.4	0.82 (0.77-0.87)	<0.001
75 to 84 years	5,398	6,466	83.5	0.65 (0.60-0.70)	<0.001
85 or older	2,040	2,451	83.2	0.64 (0.57-0.71)	<0.001
HF1: Discharge instructions					
under 65 years	178,658	207,594	86.1	ref.	ref.
65 to 74 years	123,528	143,712	86.0	0.99 (0.97-1.01)	0.373
75 to 84 years	151,451	175,244	86.4	1.03 (1.01-1.05)	0.001
85 or older	97,755	112,707	86.7	1.06 (1.04-1.08)	<0.001
HF2: Evaluation of LV function					

under 65 years	216,443	221,533	97.7	ref.	ref.
65 to 74 years	162,507	166,888	97.4	0.87 (0.84-0.91)	<0.001
75 to 84 years	220,926	227,028	97.3	0.85 (0.82-0.88)	<0.001
85 or older	169,548	175,750	96.5	0.64 (0.62-0.67)	<0.001
HF3: ACEI or ARB for LVSD					
under 65 years	95,238	99,651	95.6	ref.	ref.
65 to 74 years	52,803	56,622	93.3	0.64 (0.61-0.67)	<0.001
75 to 84 years	58,917	63,666	92.5	0.57 (0.55-0.60)	<0.001
85 or older	33,681	36,742	91.7	0.51 (0.49-0.53)	<0.001
HF4: Smoking cessation counseling					
under 65 years	78,879	80,061	98.5	ref.	ref.
65 to 74 years	31,278	32,007	97.7	0.64 (0.59-0.71)	<0.001
75 to 84 years	17,689	18,260	96.9	0.46 (0.42-0.51)	<0.001
85 or older	4,402	4,599	95.7	0.33 (0.29-0.39)	<0.001
PN2: Pnemococal vaccination given or screened for					
under 65 years	--	--	--	--	--
65 to 74 years	154,049	168,347	91.5	ref.	ref.
75 to 84 years	180,579	195,787	92.2	1.10 (1.08-1.13)	<0.001
85 or older	124,772	136,849	91.2	0.96 (0.93-0.98)	0.001
PN3a: Initial blood culture within 24 hours - ICU only					
under 65 years	43,154	45,370	95.1	ref.	ref.
65 to 74 years	23,165	24,488	94.6	0.90 (0.84-0.96)	0.003
75 to 84 years	23,777	25,070	94.8	0.94 (0.88-1.01)	0.111
85 or older	13,530	14,312	94.5	0.89 (0.82-0.97)	0.006
PN3b: Initial blood culture before first antibiotic dose - ED only					
under 65 years	180,506	192,602	93.7	ref.	ref.
65 to 74 years	92,223	97,052	95.0	1.28 (1.24-1.32)	<0.001
75 to 84 years	116,268	121,901	95.4	1.38 (1.34-1.43)	<0.001
85 or older	88,051	92,159	95.5	1.44 (1.39-1.49)	<0.001
PN4: Smoking cessation counseling					
under 65 years	138,481	142,258	97.3	ref.	ref.
65 to 74 years	39,066	40,713	96.0	0.65 (0.61-0.69)	<0.001
75 to 84 years	20,330	21,389	95.0	0.52 (0.49-0.56)	<0.001
85 or older	4,673	5,027	93.0	0.36 (0.32-0.40)	<0.001
PN5c: First antibiotic dose within 6 hours					
under 65 years	196,974	210,170	93.7	ref.	ref.
65 to 74 years	103,529	109,243	94.8	1.21 (1.18-1.25)	<0.001
75 to 84 years	128,404	134,912	95.2	1.32 (1.28-1.36)	<0.001
85 or older	95,798	100,641	95.2	1.33 (1.28-1.37)	<0.001
PN6: Antibioti selection consistent with guidelines					
under 65 years	145,078	158,844	91.3	ref.	ref.
65 to 74 years	60,719	67,599	89.8	0.84 (0.81-0.86)	<0.001
75 to 84 years	74,042	81,558	90.8	0.93 (0.91-0.96)	<0.001
85 or older	52,553	57,638	91.2	0.98 (0.95-1.01)	0.255
PN7: Influenza vaccination given or screened for					
under 65 years	92,150	105,920	87.0	ref.	ref.
65 to 74 years	80,824	89,267	90.5	1.43 (1.39-1.47)	<0.001

75 to 84 years	94,637	103,395	91.5	1.61 (1.57-1.66)	<0.001
85 or older	65,988	72,586	90.9	1.49 (1.45-1.54)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
under 65 years	543,747	565,392	96.2	ref.	ref.
65 to 74 years	264,596	275,189	96.2	0.99 (0.97-1.02)	0.637
75 to 84 years	185,731	194,018	95.7	0.89 (0.87-0.92)	<0.001
85 or older	49,930	53,035	94.1	0.64 (0.62-0.67)	<0.001
SCIP2: Prophylactic antibiotic consistent with guidelines					
under 65 years	554,132	569,841	97.2	ref.	ref.
65 to 74 years	272,719	278,267	98.0	1.39 (1.35-1.44)	<0.001
75 to 84 years	192,365	196,738	97.8	1.25 (1.21-1.29)	<0.001
85 or older	51,927	53,474	97.1	0.95 (0.90-1.00)	0.066
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
under 65 years	509,115	543,621	93.7	ref.	ref.
65 to 74 years	243,668	262,144	93.0	0.89 (0.88-0.91)	<0.001
75 to 84 years	168,265	182,048	92.4	0.83 (0.81-0.84)	<0.001
85 or older	43,548	48,116	90.5	0.65 (0.63-0.67)	<0.001
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
under 65 years	72,979	79,327	92.0	ref.	ref.
65 to 74 years	52,359	56,792	92.2	1.03 (0.99-1.07)	0.185
75 to 84 years	36,879	39,404	93.6	1.27 (1.21-1.33)	<0.001
85 or older	4,704	4,942	95.2	1.72 (1.51-1.96)	<0.001
SCIP6: appropriate hair removal					
under 65 years	810,303	818,220	99.0	ref.	ref.
65 to 74 years	380,445	383,750	99.1	1.12 (1.08-1.17)	<0.001
75 to 84 years	279,516	281,752	99.2	1.22 (1.17-1.28)	<0.001
85 or older	87,319	87,891	99.3	1.49 (1.37-1.62)	<0.001
SCIPCARD2: Perioperative period beta blocker					
under 65 years	143,202	157,742	90.8	ref.	ref.
65 to 74 years	125,183	136,865	91.5	1.09 (1.06-1.12)	<0.001
75 to 84 years	101,842	111,827	91.1	1.04 (1.01-1.06)	0.010
85 or older	29,959	33,499	89.4	0.86 (0.83-0.89)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
under 65 years	204,866	222,992	91.9	ref.	ref.
65 to 74 years	111,168	117,886	94.3	1.46 (1.42-1.51)	<0.001
75 to 84 years	92,459	97,769	94.6	1.54 (1.49-1.59)	<0.001
85 or older	35,581	37,747	94.3	1.45 (1.39-1.52)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
under 65 years	199,284	221,436	90.0	ref.	ref.
65 to 74 years	108,467	117,367	92.4	1.35 (1.32-1.39)	<0.001
75 to 84 years	90,083	97,336	92.5	1.38 (1.34-1.42)	<0.001
85 or older	34,507	37,557	91.9	1.26 (1.21-1.31)	<0.001

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Census Region

Measures and census region	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
South	126,608	129,145	98.0	ref.	ref.
Midwest	75,072	76,242	98.5	1.29 (1.20-1.38)	<0.001
Northeast	62,335	63,302	98.5	1.29 (1.20-1.39)	<0.001
West	61,600	62,432	98.7	1.48 (1.37-1.61)	<0.001
US Territories	3,752	4,167	90.0	0.18 (0.16-0.20)	<0.001
AMI2: Aspirin at discharge					
South	154,361	157,475	98.0	ref.	ref.
Midwest	96,702	98,082	98.6	1.41 (1.33-1.51)	<0.001
Northeast	72,945	73,951	98.6	1.46 (1.36-1.57)	<0.001
West	71,443	72,548	98.5	1.30 (1.22-1.40)	<0.001
US Territories	3,142	3,683	85.3	0.12 (0.11-0.13)	<0.001
AMI3: ACEI or ARB for LVSD					
South	30,162	31,629	95.4	ref.	ref.
Midwest	17,573	18,369	95.7	1.07 (0.98-1.17)	0.114
Northeast	13,443	14,124	95.2	0.96 (0.87-1.05)	0.392
West	11,325	11,875	95.4	1.00 (0.91-1.11)	0.977
US Territories	783	884	88.6	0.38 (0.30-0.47)	<0.001
AMI4: Smoking cessation counseling					
South	59,052	59,326	99.5	ref.	ref.
Midwest	34,282	34,529	99.3	0.64 (0.54-0.77)	<0.001
Northeast	21,314	21,497	99.1	0.54 (0.45-0.65)	<0.001
West	20,782	20,940	99.2	0.61 (0.50-0.74)	<0.001
US Territories	639	694	92.1	0.05 (0.04-0.07)	<0.001
AMI5: Beta-blocker at discharge					
South	150,602	153,698	98.0	ref.	ref.
Midwest	94,600	96,058	98.5	1.33 (1.25-1.42)	<0.001
Northeast	72,919	73,919	98.6	1.50 (1.40-1.61)	<0.001
West	68,776	70,048	98.2	1.11 (1.04-1.19)	0.002
US Territories	3,248	3,805	85.4	0.12 (0.11-0.13)	<0.001
AMI7a: Fibrinolytic within 30 minutes					
South	386	691	55.9	ref.	ref.
Midwest	71	157	45.2	0.65 (0.46-0.92)	0.016
Northeast	114	221	51.6	0.84 (0.62-1.14)	0.266
West	325	577	56.3	1.02 (0.82-1.27)	0.868
US Territories	88	224	39.3	0.51 (0.38-0.70)	<0.001
AMI8a: PCI within 90 minutes					
South	18,249	21,033	86.8	ref.	ref.
Midwest	12,047	13,530	89.0	1.24 (1.16-1.33)	<0.001
Northeast	7,776	8,945	86.9	1.01 (0.94-1.09)	0.695
West	10,077	11,545	87.3	1.05 (0.98-1.12)	0.182

US Territories	26	96	27.1	0.06 (0.04-0.09)	<0.001
HF1: Discharge instructions					
South	230,620	268,753	85.8	ref.	ref.
Midwest	123,214	142,800	86.3	1.04 (1.02-1.06)	<0.001
Northeast	104,441	118,681	88.0	1.21 (1.19-1.24)	<0.001
West	87,789	101,987	86.1	1.02 (1.00-1.04)	0.037
US Territories	5,328	7,036	75.7	0.52 (0.49-0.55)	<0.001
HF2: Evaluation of LV function					
South	313,881	323,530	97.0	ref.	ref.
Midwest	177,519	182,711	97.2	1.05 (1.02-1.09)	0.004
Northeast	154,546	157,057	98.4	1.89 (1.81-1.98)	<0.001
West	117,503	120,882	97.2	1.07 (1.03-1.11)	0.001
US Territories	5,975	7,019	85.1	0.18 (0.16-0.19)	<0.001
HF3: ACEI or ARB for LVSD					
South	102,341	109,272	93.7	ref.	ref.
Midwest	54,335	57,985	93.7	1.01 (0.97-1.05)	0.700
Northeast	44,314	47,239	93.8	1.03 (0.98-1.07)	0.259
West	37,449	39,660	94.4	1.15 (1.09-1.21)	<0.001
US Territories	2,200	2,525	87.1	0.46 (0.41-0.52)	<0.001
HF4: Smoking cessation counseling					
South	60,779	61,825	98.3	ref.	ref.
Midwest	30,645	31,366	97.7	0.73 (0.66-0.81)	<0.001
Northeast	20,880	21,315	98.0	0.83 (0.74-0.92)	<0.001
West	19,359	19,792	97.8	0.77 (0.69-0.86)	<0.001
US Territories	585	629	93.0	0.23 (0.17-0.31)	<0.001
PN2: Pnemococal vaccination given or screened for					
South	179,960	194,612	92.5	ref.	ref.
Midwest	114,202	124,453	91.8	0.91 (0.88-0.93)	<0.001
Northeast	88,746	95,893	92.5	1.01 (0.98-1.04)	0.466
West	75,360	83,017	90.8	0.80 (0.78-0.82)	<0.001
US Territories	1,132	3,008	37.6	0.05 (0.05-0.05)	<0.001
PN3a: Initial blood culture within 24 hours - ICU only					
South	41,731	43,940	95.0	ref.	ref.
Midwest	24,196	25,563	94.7	0.94 (0.87-1.00)	0.065
Northeast	16,787	17,632	95.2	1.05 (0.97-1.14)	0.225
West	20,703	21,725	95.3	1.07 (0.99-1.16)	0.072
US Territories	209	380	55.0	0.06 (0.05-0.08)	<0.001
PN3b: Initial blood culture before first antibiotic dose - ED only					
South	187,438	197,520	94.9	ref.	ref.
Midwest	110,172	115,477	95.4	1.12 (1.08-1.16)	<0.001
Northeast	93,600	98,873	94.7	0.95 (0.92-0.99)	0.008
West	83,935	89,171	94.1	0.86 (0.83-0.89)	<0.001
US Territories	1,903	2,673	71.2	0.13 (0.12-0.14)	<0.001
PN4: Smoking cessation counseling					
South	91,072	93,604	97.3	ref.	ref.
Midwest	48,987	51,087	95.9	0.65 (0.61-0.69)	<0.001
Northeast	32,410	33,325	97.3	0.98 (0.91-1.06)	0.695

West	29,466	30,694	96.0	0.67 (0.62-0.72)	<0.001
US Territories	615	677	90.8	0.28 (0.21-0.36)	<0.001
PN5c: First antibiotic dose within 6 hours					
South	208,883	220,861	94.6	ref.	ref.
Midwest	128,036	134,173	95.4	1.20 (1.16-1.23)	<0.001
Northeast	96,895	102,680	94.4	0.96 (0.93-0.99)	0.014
West	88,422	93,297	94.8	1.04 (1.01-1.08)	0.024
US Territories	2,469	3,955	62.4	0.10 (0.09-0.10)	<0.001
PN6: Antibioti selection consistent with guidelines					
South	134,164	147,904	90.7	ref.	ref.
Midwest	78,294	86,405	90.6	0.99 (0.96-1.02)	0.434
Northeast	59,152	63,980	92.5	1.25 (1.21-1.30)	<0.001
West	58,295	63,887	91.2	1.07 (1.03-1.10)	<0.001
US Territories	2,487	3,463	71.8	0.26 (0.24-0.28)	<0.001
PN7: Influenza vaccination given or screened for					
South	136,798	151,103	90.5	ref.	ref.
Midwest	82,023	90,887	90.2	0.97 (0.94-0.99)	0.021
Northeast	60,341	66,389	90.9	1.04 (1.01-1.08)	0.008
West	53,674	60,817	88.3	0.79 (0.76-0.81)	<0.001
US Territories	763	1,972	38.7	0.07 (0.06-0.07)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
South	394,545	409,842	96.3	ref.	ref.
Midwest	266,459	276,954	96.2	0.98 (0.96-1.01)	0.223
Northeast	193,461	200,392	96.5	1.08 (1.05-1.11)	<0.001
West	183,368	192,227	95.4	0.80 (0.78-0.82)	<0.001
US Territories	6,171	8,219	75.1	0.12 (0.11-0.12)	<0.001
SCIP2: Prophylactic antibiotic consistent with guidelines					
South	403,132	414,194	97.3	ref.	ref.
Midwest	273,589	279,578	97.9	1.25 (1.21-1.29)	<0.001
Northeast	197,917	202,575	97.7	1.17 (1.13-1.21)	<0.001
West	189,102	194,077	97.4	1.04 (1.01-1.08)	0.015
US Territories	7,403	7,896	93.8	0.41 (0.38-0.45)	<0.001
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
South	361,060	388,513	92.9	ref.	ref.
Midwest	248,442	264,681	93.9	1.16 (1.14-1.19)	<0.001
Northeast	180,683	191,769	94.2	1.24 (1.21-1.27)	<0.001
West	169,118	183,133	92.3	0.92 (0.90-0.94)	<0.001
US Territories	5,293	7,833	67.6	0.16 (0.15-0.17)	<0.001
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
South	66,018	71,829	91.9	ref.	ref.
Midwest	40,808	44,136	92.5	1.08 (1.03-1.13)	<0.001
Northeast	29,288	30,993	94.5	1.51 (1.43-1.60)	<0.001
West	29,005	31,251	92.8	1.14 (1.08-1.20)	<0.001
US Territories	1,802	2,256	79.9	0.35 (0.31-0.39)	<0.001
SCIP6: appropriate hair removal					
South	587,629	592,145	99.2	ref.	ref.
Midwest	385,646	388,859	99.2	0.92 (0.88-0.97)	<0.001

Northeast	297,284	299,532	99.2	1.02 (0.97-1.07)	0.532
West	279,180	282,116	99.0	0.73 (0.70-0.77)	<0.001
US Territories	7,844	8,961	87.5	0.05 (0.05-0.06)	<0.001
SCIPCARD2: Perioperative period beta blocker					
South	147,784	162,051	91.2	ref.	ref.
Midwest	106,546	117,054	91.0	0.98 (0.95-1.01)	0.113
Northeast	85,381	92,184	92.6	1.21 (1.18-1.25)	<0.001
West	59,482	67,099	88.6	0.75 (0.73-0.78)	<0.001
US Territories	993	1,545	64.3	0.17 (0.16-0.19)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
South	169,988	182,774	93.0	ref.	ref.
Midwest	99,327	106,377	93.4	1.06 (1.03-1.09)	<0.001
Northeast	96,401	100,803	95.6	1.65 (1.59-1.71)	<0.001
West	76,837	84,597	90.8	0.74 (0.72-0.77)	<0.001
US Territories	1,521	1,843	82.5	0.36 (0.31-0.40)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
South	164,922	181,622	90.8	ref.	ref.
Midwest	96,639	105,893	91.3	1.06 (1.03-1.09)	<0.001
Northeast	94,639	100,532	94.1	1.63 (1.58-1.68)	<0.001
West	74,698	83,964	89.0	0.82 (0.79-0.84)	<0.001
US Territories	1,443	1,685	85.6	0.60 (0.53-0.69)	<0.001

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Hospital Rural/Urban Location (less than 0.1 of cases were excluded due to missing data on hospital rural/urban location)

Measures and hospital rural/urban location	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
Urban	291,143	295,802	98.4	ref.	ref.
Rural	38,206	39,467	96.8	0.48 (0.46-0.52)	<0.001
AMI2: Aspirin at discharge					
Urban	358,943	364,751	98.4	ref.	ref.
Rural	39,639	40,973	96.7	0.48 (0.45-0.51)	<0.001
AMI3: ACEI or ARB for LVSD					
Urban	65,715	68,816	95.5	ref.	ref.
Rural	7,570	8,064	93.9	0.72 (0.66-0.80)	<0.001
AMI4: Smoking cessation counseling					
Urban	122,296	123,021	99.4	ref.	ref.
Rural	13,772	13,964	98.6	0.43 (0.36-0.50)	<0.001
AMI5: Beta-blocker at discharge					
Urban	350,908	356,917	98.3	ref.	ref.
Rural	39,223	40,596	96.6	0.49 (0.46-0.52)	<0.001
AMI7a: Fibrinolytic within 30 minutes					
Urban	743	1,378	53.9	ref.	ref.
Rural	241	491	49.1	0.82 (0.67-1.01)	0.066
AMI8a: PCI within 90 minutes					
Urban	44,330	50,581	87.6	ref.	ref.
Rural	3,845	4,568	84.2	0.75 (0.69-0.82)	<0.001
HF1: Discharge instructions					
Urban	462,198	530,366	87.1	ref.	ref.
Rural	89,161	108,850	81.9	0.67 (0.66-0.68)	<0.001
HF2: Evaluation of LV function					
Urban	640,201	651,626	98.2	ref.	ref.
Rural	129,180	139,524	92.6	0.22 (0.22-0.23)	<0.001
HF3: ACEI or ARB for LVSD					
Urban	204,835	216,883	94.4	ref.	ref.
Rural	35,794	39,788	90.0	0.53 (0.51-0.55)	<0.001

HF4: Smoking cessation counseling					
Urban	109,946	111,420	98.7	ref.	ref.
Rural	22,294	23,495	94.9	0.25 (0.23-0.27)	<0.001
PN2: Pnemococal vaccination given or screened for					
Urban	343,445	372,029	92.3	ref.	ref.
Rural	115,907	128,899	89.9	0.74 (0.73-0.76)	<0.001
PN3a: Initial blood culture within 24 hours - ICU only					
Urban	82,609	86,195	95.8	ref.	ref.
Rural	21,017	23,045	91.2	0.45 (0.43-0.48)	<0.001
PN3b: Initial blood culture before first antibiotic dose - ED only					
Urban	370,713	390,752	94.9	ref.	ref.
Rural	106,285	112,910	94.1	0.87 (0.84-0.89)	<0.001
PN4: Smoking cessation counseling					
Urban	153,343	157,007	97.7	ref.	ref.
Rural	49,195	52,364	93.9	0.37 (0.35-0.39)	<0.001
PN5c: First antibiotic dose within 6 hours					
Urban	391,112	414,535	94.3	ref.	ref.
Rural	133,539	140,375	95.1	1.17 (1.14-1.20)	<0.001
PN6: Antibioti selection consistent with guidelines					
Urban	244,813	267,228	91.6	ref.	ref.
Rural	87,548	98,376	89.0	0.74 (0.72-0.76)	<0.001
PN7: Influenza vaccination given or screened for					
Urban	250,927	277,437	90.4	ref.	ref.
Rural	82,639	93,694	88.2	0.79 (0.77-0.81)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
Urban	873,006	907,766	96.2	ref.	ref.
Rural	170,887	179,749	95.1	0.77 (0.75-0.79)	<0.001
SCIP2: Prophylactic antibiotic consistent with guidelines					
Urban	895,997	917,696	97.6	ref.	ref.
Rural	175,035	180,505	97.0	0.77 (0.75-0.80)	<0.001
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
Urban	805,137	863,438	93.2	ref.	ref.
Rural	159,351	172,373	92.4	0.89 (0.87-0.90)	<0.001
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
Urban	155,675	168,209	92.5	ref.	ref.
Rural	11,246	12,256	91.8	0.90 (0.84-0.96)	0.001

SCIP6: appropriate hair removal					
Urban	1,304,767	1,316,311	99.1	ref.	ref.
Rural	252,581	255,064	99.0	0.90 (0.86-0.94)	<0.001
SCIPCARD2: Perioperative period beta blocker					
Urban	341,816	374,870	91.2	ref.	ref.
Rural	58,327	65,020	89.7	0.84 (0.82-0.87)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
Urban	368,551	393,488	93.7	ref.	ref.
Rural	75,501	82,880	91.1	0.69 (0.67-0.71)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
Urban	358,864	391,436	91.7	ref.	ref.
Rural	73,455	82,235	89.3	0.76 (0.74-0.78)	<0.001

SURGICAL IMPROVEMENT PROJECT (SCIP) CART PAPER TOOL

Provider Name: _____

CMS Certification Number (CCN): _____

National Provider Identifier (NPI): _____

Health Care Organization Identifier (HCOID): (Joint Commission Required) _____

First Name: _____

Last Name: _____

Sex: ☐ Female ☐ Male ☐ Unknown

Birthdate: _____
Dates are MM-DD-YYYY. UTD is not an allowable entry.

Race: (Select one option)
- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Native Hawaiian or Pacific Islander
- ☐ UTD

Hispanic Ethnicity:
- ☐ No
- ☐ Yes

Hospital Patient ID: _____
Up to 40 letters, numbers, and/or characters.

Admission Date: _____
Dates are MM-DD-YYYY. UTD is not an allowable entry.

Discharge Date: _____
Dates are MM-DD-YYYY. UTD is not an allowable entry.

Abstractor ID: _____

Abstraction Date: _____
Dates are MM-DD-YYYY. UTD is not an allowable entry.

Vendor Tracking ID:
(Joint Commission Required) _____

1. **Would you like the questions to be enabled or disabled appropriately per the measure algorithms, or do you want all questions enabled? (SKIPPATTERN**) (Data Entry Question Only)
2. **What was the ICD-9-CM code selected as the principal diagnosis for this record? (PRINDX)** (Format three digits period two digits):

   _____

3. **Were there ICD-9-CM Other Diagnosis Codes?(OTHRDX#A)**
   (Format three digits period two digits):

   _____ _____ _____

   _____ _____ _____

   _____ _____ _____

   _____ _____ _____

4. **Was there an ICD-9-CM code selected as the principal procedure for this record?**

ICD-9-CM Principal Procedure Code (PRINPXA) (Format three digits period two digits):	**Date Performed (PRINPXDATE)** Dates are (MM-DD-YYYY or UTD)
_____	_____

5. **Were there ICD-9-CM other Procedure Codes?**

ICD-9-CM Other Procedure Code(s) (OTHERPX#A) (Format three digits period two digits):	**Date Performed (OTHERPX#DT)** (Dates are MM-DD-YYYY or UTD)

6. **What is the patient's source of payment for this Episode of Care? (PMTSRCE)**

☐ Source of payment is Medicare
☐ Source of payment is Non-Medicare

7. **What is the patient's Medicare/HIC number? (PTHIC)** (Required for data transmission of all cases that have a standard HIC#, All alpha characters must be upper case)

_____

8. **What is the postal code of the patient's residence? (POSTALCODE)**
(Five or nine digits, HOMELESS or NON-US)

_____

9. **Does this case represent part of a sample? (SAMPLE)**

☐ Yes
☐ No

10. What was the patient's discharge disposition? (DISCHGSTAT)

- ☐ 01 Discharged to home care or self care (routine discharge)
- ☐ 02 Discharged/transferred to a short term general hospital for inpatient care
- ☐ 03 Discharged/transferred to skilled nursing facility (SNF) with Medicare certification in anticipation of skilled care
- ☐ 04 Discharged/transferred to a facility that provides custodial or supportive care
- ☐ 05 Discharged/transferred to a designated cancer center or children's hospital
- ☐ 06 Discharged/transferred to home under care of organized home health service organization in anticipation of covered skilled care
- ☐ 07 Left against medical advice or discontinued care
- ☐ 20 Expired
- ☐ 21 Discharged/transferred to court/law enforcement
- ☐ 43 Discharged/transferred to a federal health care facility
- ☐ 50 Hospice - home
- ☐ 51 Hospice - medical facility (certified) providing hospice level of care
- ☐ 61 Discharged/transferred to hospital-based Medicare approved swing bed
- ☐ 62 Discharged/transferred to an inpatient rehabilitation facility (IRF) including rehabilitation distinct part units of a hospital
- ☐ 63 Discharged/transferred to a Medicare certified long term care hospital (LTCH)
- ☐ 64 Discharged/transferred to a nursing facility certified under Medicaid but not certified under Medicare
- ☐ 65 Discharged/transferred to a psychiatric distinct part unit of a hospital
- ☐ 66 Discharged/transferred to a Critical Access Hospital (CAH)
- ☐ 70 Discharged/transferred to another type of health care institution not defined elsewhere in this code list (See Code 05)

11. Was the procedure performed entirely by laparoscope or other fiber optic scope? (LAPAROSCOPE)

- ☐ Yes
- ☐ No
- ☐ UTD

12. During this hospital stay, was the patient enrolled in a clinical trial in which patients with the same condition as the measure set were being studied (CLNCLTRIAL)

- ☐ Yes
- ☐ No

13. Is there documentation that the patient was on continuous warfarin prior to admission? (PREADWARFARIN)

- ☐ Yes
- ☐ No

14. On what date did the anesthesia for the procedure start? (ANESTSTARTDT)
Dates are in MM-DD-YYYY format unless specified

_____

☐ UTD

15. Did the patient have an infection during this hospitalization prior to the principal procedure? (INFECPTA)

☐ Yes
☐ No

16. Is there documentation that the patient expired during the timeframe from surgical incision through discharge from the post anesthesia care/recovery area? (PERIOPDEATH)

☐ Yes
☐ No

17. Were there any other procedures requiring general or spinal/epidural anesthesia that occurred within three days (four days for CABG or Other Cardiac Surgery) prior to or after the principal procedure during this hospital stay? (OTHERSURG)

☐ Yes
☐ No

18. Did the patient receive antibiotics within 24 hours of arrival or the day prior to arrival and/or during this hospital stay? (ANTIBIRCVD)

☐ Antibiotic received only within 24 hours of arrival or the day prior to arrival and not during hospital stay.
☐ Antibiotic received within 24 hours of arrival or the day prior to arrival and during hospital stay (arrival through 24 hours for PN and arrival through 48 hours postop [72 hours post op for CABG or Other Cardiac Surgery] for SCIP-Inf).
☐ Antibiotic received only during hospital stay (arrival through 24 hours for PN and arrival through 48 hours postop [72 hours post op for CABG or Other Cardiac Surgery] for SCIP-Inf).
☐ Antibiotic not received (within 24 hours of arrival or arrival through 24 hours for PN and arrival through 48 hours postop [72 hours post op for CABG or Other Cardiac Surgery] for SCIP-Inf), or unable to determine from medical record documentation.

19. What were the antibiotics administered any time after hospital arrival and within the specified timeframe? (ABXDETAILS)

Antibiotic Name (NAMEABX) (trade or generic) see Appendix C, Table 2.1.	**Antibiotic Administration Date (DTABX)** Dates are MM-DD-YYYY or UTD	**Antibiotic Administration Time (TMABX)** Times are military format HH:MM or UTD	**Antibiotic Administration Route (ROUTEABX)** Format: 1=PO/NG/PEG tube (Oral) 2=IV (Intravenous) 3=IM (Intramuscular) 10=UTD

20. **Were the only antibiotic combinations administered prior to hospital arrival or more than 24 hours prior to incision either oral Neomycin Sulfate + Erythromycin Base or oral Neomycin Sulfate + Metronidazole? (ORALANTIBIOTIC)**

☐ Yes
☐ No

21. **At what time was the anesthesia initiated for the principal procedure? (ANESTSTARTTM)HH:MM military format**

_____

☐ UTD

22. **At what time was the initial incision made for the principal procedure? (SURGINCISTM) HH:MM military format**

_____

☐ UTD

23. **On what date was the incision for the principal procedure made? (SURGINCISDT)** Dates are in MM-DD-YYYY format unless specified

_____

☐ UTD

24. **On what date did the anesthesia for the for the principal procedure end? (ANESTHENDDATE)** Dates are in MM-DD-YYYY format unless specified

_____

☐ UTD

25. **At what time did the anesthesia for the principal procedure end? (ANESTHENDTIME) HH:MM military format**

_____

☐ UTD

26. **What reason was documented postoperatively by the physician/APN/PA for extending the duration of the antibiotic administration past 24 hours (48 hours for CABG or Other Cardiac Surgery) after *Anesthesia End Time*?(RSNEXTABX)** ***(Select all that apply)***

☐ There is physician/advanced practice nurse/physician assistant (physician/APN/PA) documentation within 2 days (3 days for CABG or Other Cardiac Surgery) following the principal procedure with the day of surgery being day zero that erythromycin was administered postoperatively for the purpose of increasing gastric motility.

- ☐ There is physician/APN/PA documentation within 2 days (3 days for CABG or Other Cardiac Surgery) following the principal procedure with the day of surgery being day zero that an antibiotic was administered postoperatively for the treatment of hepatic encephalopathy.
- ☐ There is physician/APN/PA documentation within 2 days (3 days for CABG or Other Cardiac Surgery) following the principal procedure with the day of surgery being day zero that an antibiotic was administered postoperatively as prophylaxis of Pneumocystis pneumonia (PCP) to a patient with a diagnosis of AIDS.
- ☐ There is physician/APN/PA documentation within 2 days (3 days for CABG or Other Cardiac Surgery) following the principal procedure with the day of surgery being day zero that the patient had an infection.
- ☐ There is physician/APN/PA documentation within 2 days following the principal procedure with the day of surgery being day zero that the patient has a current malignancy of the lower extremity involving the same extremity as the principal procedure that was an original arthroplasty or a joint revision surgery.
- ☐ There is documentation within 2 days following the principal procedure with the day of surgery being day zero that the principal procedure was a joint revision surgery.
- ☐ No documented reason/Unable to Determine.

27. **What method of surgical site hair removal was performed prior to the principal procedure? (PREOPHRREM)** ***(Select all that apply)***

- ☐ No documented hair removal or no hair removal performed
- ☐ Razor
- ☐ Clippers/Scissors
- ☐ Depilatory
- ☐ Other
- ☐ Patient performed their own hair removal
- ☐ Unable to determine method
- ☐ Hair removal with a razor from the scrotal area OR from the scalp after a current traumatic head injury

28. Was there documentation that the procedure was performed using general or neuraxial anesthesia? (ANESTTYPE)

- ☐ There is documentation that the procedure was performed using general anesthesia.
- ☐ There is documentation that the procedure was performed using neuraxial anesthesia.
- ☐ There is documentation that the procedure was performed using **both** neuraxial and general anesthesia.
- ☐ There is no documentation that the procedure was performed using either general or neuraxial anesthesia or unable to determine from the medical record documentation.

29. Was there documentation that intentional hypothermia was utilized during the perioperative period? (INTENTHYPO)

☐ Yes
☐ No

30. Was there documentation of active warming used intraoperatively OR at least one body temperature equal to or greater than 96.8 degrees F/36 degrees C within the 30 minutes immediately prior to or the 15 minutes immediately after *Anesthesia End Time* in the medical record?(TEMPERATURE) *(Select all that apply)*

☐ 1 Active warming was performed intraoperatively.
☐ 2 There is documentation of at least one body temperature greater than or equal to 96.8 degrees F/36 degrees C within the 30 minutes immediately prior to or the 15 minutes immediately after Anesthesia End Time.
☐ 3 There is no documentation of Allowable Values 1 AND 2.
☐ 4 Unable to determine from the medical record documentation.

31. Is there documentation that the patient had a urinary catheter paced in the perioperative timeframe and that it was still in place at the time of discharge from the recovery/post-anesthesia care area? (URINECATH)

☐ There is documentation that an indwelling urethral catheter was placed perioperatively and was still in place at the time of discharge from the recovery/post-anesthesia care area.
☐ There is no documentation that an indwelling urethral catheter was placed perioperatively and was still in place at the time of discharge from the recovery/post-anesthesia care area.
☐ There is documentation that the patient had an indwelling urethral or suprapubic catheter or was being intermittently catheterized prior to the perioperative timeframe.
☐ There is documentation that the patient had a suprapubic catheter placed perioperatively and was still in place at the time of discharge from the recovery/post-anesthesia care area or the patient was being intermittently catheterized during the perioperative period.
☐ Unable to determine whether the patient had a catheter in place from medical record documentation.

32. Is there documentation that the urinary catheter was removed on POD 0 through POD 2 with the *Anesthesia End Date* being POD 0? (CATHREMOVE)

☐ There is documentation that the urinary catheter was removed on POD 0 through POD 2.
☐ There is no documentation that the urinary catheter was removed on POD 0 through POD 2.
☐ Unable to determine (UTD) from medical record documentation whether the urinary catheter was removed on POD 0 through POD 2.

33. Was there documentation of reason(s) for not removing the urinary catheter postoperatively? (REASONCNTCATH)

- ☐ There is documentation that the patient was in the intensive care unit (ICU) AND receiving diuretics.
- ☐ There is physician/advanced practice nurse/physician assistant (physician/APN/PA) documentation of reasons for not removing the urinary catheter postoperatively.
- ☐ There is no physician/APN/PA documentation of reasons for not removing the urinary catheter postoperatively or unable to determine from medical record documentation.

34. Is there documentation that the patient was on a daily beta-blocker therapy prior to arrival? (BBLKRCURRENT)

- ☐ Yes
- ☐ No

35. Was the patient taking the beta-blocker prior to arrival pregnant? (BBLKRPREG)

- ☐ Yes
- ☐ No
- ☐ UTD

36. Is there documentation that a beta-blocker was received during the perioperative period? (BBLKRPERIOP)

- ☐ Yes
- ☐ No

37. Was there documentation of reasons for not administering a beta-blocker during the perioperative period? (CTRBBLKPERIOP)

- ☐ Yes
- ☐ No

38. Is there documentation by a physician/advanced practice nurse/physician assistant (physician/APN/PA) or pharmacist in the medical record of a reason for not administering pharmacological and/or mechanical VTE prophylaxis? (CONTRAVTEPRO)

- ☐ There is physician/APN/PA or pharmacist documentation of a reason for not administering mechanical VTE prophylaxis.
- ☐ There is physician/APN/PA or pharmacist documentation of a reason for not administering pharmacological VTE prophylaxis.
- ☐ There is physician/APN/PA or pharmacist documentation of a reason for not administering both mechanical and pharmacological VTE prophylaxis.
- ☐ There is no physician/APN/PA or pharmacist documentation of a reason for not administering either mechanical or pharmacological VTE prophylaxis or unable to determine from medical record documentation.

39. **What type of VTE prophylaxis was documented in the medical record? (Collect any VTE prophylaxis that was ordered at anytime from hospital arrival to 24 hours after Anesthesia End time). (VTEPROA)**

VTE Prophylaxis Ordered (VTEPROPH) *(Select all that apply)*	**Was VTE Prophylaxis Timely? (VTETIMELY)**
☐ Low dose unfractionated heparin (LDUH)	☐ Yes ☐ No
☐ Low molecular weight heparin (LMWH)	☐ Yes ☐ No
☐ Intermittent pneumatic compression devices (IPC)	☐ Yes ☐ No
☐ Graduated compression stocking (GCS)	☐ Yes ☐ No
☐ Factor Xa Inhibitor	☐ Yes ☐ No
☐ Warfarin	☐ Yes ☐ No
☐ Venous foot pumps (VFP)	☐ Yes ☐ No
☐ Oral Factor Xa Inhibitor	☐ Yes ☐ No
☐ None of the above or not documented or unable to determine from medical record documentation	☐ Yes ☐ No

40. Did the patient have any allergies, sensitivities or intolerance to beta-lactam/penicillin antibiotic or cephalosporin medications? (ANTIALLERGY)

☐ Yes
☐ No

41. **What reason was documented for using vancomycin? (VANCO)**

(Select all that apply)

- ☐ Documentation of beta-lactam (penicillin or cephalosporin) allergy.
- ☐ Physician/APN/PA or pharmacist documentation of MRSA colonization or infection.
- ☐ Documentation of patient being high-risk due to acute inpatient hospitalization within the last year.
- ☐ Documentation of patient being high-risk due to nursing home or extended care facility setting within the last year, prior to admission.
- ☐ Physician/APN/PA or pharmacist documentation of increased MRSA rate, either facility-wide or operation-specific.
- ☐ Physician/APN/PA or pharmacist documentation of chronic wound care or dialysis.
- ☐ Documentation of continuous inpatient stay more than 24 hours prior to the principal procedure.
- ☐ Other Physician/APN/PA or pharmacist documented reason.
- ☐ No documented reason/Unable to Determine.
- ☐ Physician/APN/PA or pharmacist documentation of patient undergoing valve surgery.
- ☐ Documentation of patient being transferred from another inpatient hospitalization after a 3-day stay.

42. What was the patient's blood glucose level on postoperative day one (POD 1) closest to 6:00 A.M.? (GLUPOD1)

_____ (1-3000 mg per dL)

☐ UTD

43. What was the patient's blood glucose level on postoperative day two (POD 2) closest to 6:00 A.M.? (GLUPOD2)

_____ (1-3000 mg per dL)

☐ UTD

44. What is the first physician identifier? (PHYSICIAN_1)

_____

45. What is the second physician identifier? (PHYSICIAN_2)

_____

This material was prepared by the IFMC (Hospital Inpatient Quality Reporting Program Contractor) under contract with the Centers for Medicare & Medicaid Service (CMS), an agency of the US Department of Health and Human Services. It is based on *The Specifications Manual for National Hospital Inpatient Quality Measures*, which is a collaborative effort of CMS, The Joint Commission, SDPS, and the Hospital Inpatient Quality Reporting Program Contractor. 9SoW-IA-HIQRP-09/10-106

NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 0529 **NQF Project:** Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION
De.1 **Measure Title:** Prophylactic antibiotics discontinued within 24 hours after surgery end time
De.2 **Brief description of measure***:* 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.
1.1-2 **Type of Measure:** Process De.3 **If included in a composite or paired with another measure, please identify composite or paired measure**
De.4 **National Priority Partners Priority Area:** Safety De.5 **IOM Quality Domain**: Safety De.6 **Consumer Care Need:** Staying healthy

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:** A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary A.4 **Measure Steward Agreement attached:**	**A** Y☐ N☐

B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. ►**Purpose:** Public reporting, Internal quality improvement Accountability, Payment incentive, Accreditation	**C** Y☐ N☐
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1**Testing:** Yes, fully developed and tested D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** Yes	**D** Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** **Staff Notes to Steward** (*if submission returned*)**:**	**Met** Y☐ N☐
Staff Notes to Reviewers (*issues or questions regarding any criteria*)**:**	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (evaluation criteria) **1a. High Impact**	**Eval Rating**
(for NQF staff use) **Specific NPP goal**:	
1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Frequently performed procedure, Patient/societal consequences of poor quality 1a.2 1a.3 **Summary of Evidence of High Impact:** Surgical site infection (SSIs) are the second most common cause of healthcare associated infections.SSIs account for 14-16% of all hospital-acquired infections and are among the most common complications of care, occurring in 2 to 5% of patients after clean extra-abdominal operations and up to 20 % of intra-abdominal procedures. Among surgical patients, SSIs account for 40% of all such hospital-acquired infections. By reducing SSIs, hospitals on average could recognize a savings of $3,152 and a reductions in extended length of stay by seven days on each patient developing an infection. 1a.4 **Citations for Evidence of High Impact:** Selected References: Zhan C, Miller MR. Excess length of stay, charges and mortality attributable to medical injuries during hospitalization. JAMA 2003; 290: 1868-1874. Delgado-Rodriguez M, Sillero-Arenas M, Medina-Cuadros M, Martinez-Gallego G. Nosocomial infections in surgical patients: comparison of two measures of intrinsic patient risk. Infect Control Hosp Epidemiol 1997; 18: 19-23. Polk HC, Christmas AB. Prophylactic antibiotics in surgery and surgical wound infections. Am Surg 200; 66:	**1a** C☐ P☐ M☐ N☐

105-111.

1b. Opportunity for Improvement

1b.1 Benefits (improvements in quality) envisioned by use of this measure: Discontinuation of prophylactic antibiotics within 24 hours may reduce the rate of Clostridium difficile in patients compromised because of surgery. Antibiotic overuse leads to resistant pathogens that make infections more difficult and costly to treat. All of these issues increase the cost of healthcare to consumers as well as providers.

1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:
National rates from hospital-reported data to the clinical data warehouse for the second quarter in 2010 shows that facilities are discontinuing antibiotic prophylaxis 95.5% of the time. The rates for discontinuation from a national sample of 39,000 Medicare patients undergoing surgery in 2001 (baseline) showed that antibiotics were discontinued in a timely manner 40.7% of the time. A trend report is provided with this submission.

1b.3 Citations for data on performance gap:
The most recent data available (2Q 2010) used a sample of 3561 hospitals reporting data to the clinical warehouse. The denominator included 269,809 cases; the numerator 257,724. This is hospital submitted data to the clinical data warehouse.

1b.4 Summary of Data on disparities by population group:
A disparities report is attached to this submission.

1b.5 Citations for data on Disparities:
The attached disparities report uses 2009 data from the clinical data warehouse.

1b
C☐
P☐
M☐
N☐

1c. Outcome or Evidence to Support Measure Focus

1c.1 Relationship to Outcomes (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** An increase in the number of cases that have antibiotics discontinued in a timely manner may reduce antibiotic overuse which leads to resistant pathogens. Discontinuation of prophylactic antibiotics within 24 hours may reduce the rate of Clostridium difficile in patients compromised because of surgery.

1c.2-3. Type of Evidence: Evidence-based guideline

1c.4 Summary of Evidence (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
The majority of published evidence demonstrates that antimicrobial prophylaxis after wound closure is unnecessary, and most studies comparing single- with multiple-dose prophylaxis have not shown benefit of additional doses. Prolonged use is associated with emergence of resistant pathogens.

1c.5 Rating of strength/quality of evidence (*also provide narrative description of the rating and by whom***):**
Grade 1A to Grade 2C

1c.6 Method for rating evidence: Definitions:Levels of Evidence
Level A: Data derived from multiple randomized clinical trials
Level B: Data derived from a single randomized trial or from nonrandomized trials
Level C: Consensus expert opinion
Classification of Recommendations
Class I: Conditions for which there is evidence and/or general agreement that a given procedure is useful and effective
Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of a procedure
IIa: Weight of evidence favors usefulness/efficacy.
IIb: Usefulness/efficacy is less well established by evidence.
Class III: Conditions for which there is evidence and/or general agreement that the procedure is not

1c
C☐
P☐
M☐
N☐

useful/effective

1c.7 Summary of Controversy/Contradictory Evidence: Initially, the measure followed the recommendation of the Guideline Writers Workgroup that ALL surgeries have prophylaxis discontinued within 24 hours postoperatively. When the Society of Thoracic Surgeons published their recommendations on antibiotic duration of up to 48 hours postoperatively (echoing the ASHP recommendation based on expert opinion), the measure specifications were revised to allow postoperative dosing of up to 48 hours for cardiac surgeries only.

1c.8 Citations for Evidence (*other than guidelines*): 1. Scher KS. Studies on the duration of antibiotic administration for surgical prophylaxis. Am Surg 1997; 63:59-62.
2. Bratzler DS, Houck PM for the Surgical Infection Prevention Guideline Writers Workgroup. Antimicrobial prophylaxis for surgery: An advisory statement from the National Surgical Infection Prevention Project. CID 2004; 38: 1706-1715.

1c.9 Quote the Specific guideline recommendation (*including guideline number and/or page number*):
STS:There is evidence indicating that antibiotic prophylaxis of 48 hours duration is effective. There is some evidence that single-dose prophylaxis or 24-hour prophylaxis may be as effective as 48-hour prophylaxis, but additional studies are necessary before confirming the effectiveness of prophylaxis lasting less than 48 hours. There is no evidence that prophylaxis administered for longer than 48 hours is more effective than a 48-hour regimen.
ASHP: Duration is based on expert panel consensus. Prophylaxis for 24 hours or less may be appropriate.
The Medical Letter: Most Medical Letter consultants believe, however, that postoperative doses are unnecessary after wound closure and can increase the risk of antimicrobial resistance.
SHEA/IDSA: Discontinue prophylaxis within 24 hours after surgery for most procedures; discontinue within 48 hours for cardiac procedures

1c.10 Clinical Practice Guideline Citation: 1. Edwards FH, Engelman RM, Houck P, Shahian CM, Bridges CR. The Society of Thoracic Surgeons Practice Guideline Series: Antibiotic prophylaxis in cardiac surgery, Part I: Duration, 2006. Ann Thoracic Surg 2006; 81:397-404.
2. American Society of Health-System Pharmacists. ASHP therapeutic guidelines on antimicrobial prophylaxis in surgery. Am J Health Syst Pharm 1999; 56: 1839-1888.
3. No author listed. Treatment Guidelines from The Medical Letter. Antimicrobial Prophylaxis for Surgery. Med Lett Drugs Ther 2009; 7(82): 47-52.
4. Anderson DJ, Kaye KS, Classen D, Arias KM, Podgorny K, Burstin H, Calfee DP, Coffin SE, Dubberke ER, Fraser V, Gerding DN, Griffin FA, Gross P, Klompas M, Lo E, Marschall J, Mermel LA, Nicolle L, Pegues DA, Perl TM, Saint S, Salgado CD, Weinstein RA, Wise R, Yokoe DS. Strategies to prevent surgical site infections in acute care hospitals. Infect Control Hosp Epidemiol 2008 Oct;29 Suppl 1:S51-61

1c.11 National Guideline Clearinghouse or other URL:
Http://www.guideline.gov/summary/summary.aspx?doc_id=7194&nbr=004297&string=antibiotic+AND+prophylaxis+AND+duration

1c.12 Rating of strength of recommendation (*also provide narrative description of the rating and by whom*):
The majority of published evidence shows that prophylaxis after wound closure is unnecessary. Prolonged use can promote resistance.

1c.13 Method for rating strength of recommendation (*If different from USPSTF system, also describe rating and how it relates to USPSTF)*:
The USPSTF assigns letter grades only. These guidelines use levels of evidence as well as grades of recommendations.

1c.14 Rationale for using this guideline over others:
Several guidelines were used to support the measure. On the basis of published evidence, the Guideline Writers Work Group endorsed the recommendation that prophylactic antimicrobials should be discontinued within 24 hours after surgery.

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**

Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 Do you have a web page where current detailed measure specifications can be obtained? **S.2 If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 Numerator Statement (*Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome***):** Number of surgical patients whose prophylactic antibiotics were discontinued within 24 hours after Anesthesia End Time (48 hours for CABG or Other Cardiac Surgery). **2a.2 Numerator Time Window (***The time period in which cases are eligible for inclusion in the numerator***):** Admission to 48 hours after Anesthesia End Time **2a.3 Numerator Details (***All information required to collect/calculate the numerator, including all codes, logic, and definitions***):** Data Elements: Anesthesia End Date Anesthesia End Time Antibiotic Administration Date Antibiotic Administration Time	
2a.4 Denominator Statement (*Brief, text description of the denominator - target population being measured***):** 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) **2a.5 Target population gender:** Female, Male **2a.6 Target population age range:** Patients aged 18 and older **2a.7 Denominator Time Window (***The time period in which cases are eligible for inclusion in the denominator***):** Admission to discharge **2a.8 Denominator Details (***All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):** Data Elements: Admission Date Anesthesia Start Date Antibiotic Administration Route Antibiotic Name Antibiotic Received Birthdate Clinical Trial	**2a-specs** **C☐** **P☐** **M☐** **N☐**

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

2a.9 Denominator Exclusions (*Brief text description of exclusions from the target population***):** 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.

2a.10 Denominator Exclusion Details (*All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
Clinical Trial
Infection Prior to Anesthesia
Laparoscope
Other Surgeries
Perioperative Death
Reasons to Extend Antibiotics

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
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.

2a.12-13 Risk Adjustment Type: No risk adjustment necessary

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
NA

2a.15-17 Detailed risk model available Web page URL or attachment:

2a.18-19 Type of Score: Rate/proportion

2a.20 Interpretation of Score: Better quality = Higher score

2a.21 Calculation Algorithm (*Describe the calculation of the measure as a flowchart or series of steps*):

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 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 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.
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.
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 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.
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.

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 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

2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
The SCIP Topic Population (common to all SCIP measures) is defined as patients admitted to the hospital for inpatient acute care with an ICD-9-CM Principal Procedure Code for SCIP as defined in Appendix A, Table 5.10 and a Length of Stay (Discharge Date - Admission Date) <= 120 days. There are eight distinct strata or sub-populations within the SCIP Topic Population, each identified by a specific group of procedure codes. The patients in each stratum are counted in the Initial Patient Population of multiple measures.

The following sample size tables for each option automatically build in the number of cases needed to obtain the required sample sizes.

Quarterly Sampling

For hospitals selecting sample cases for SCIP, a modified sampling procedure is required. Hospitals selecting sample cases for this set must ensure that each individual stratum's population and quarterly sample size meets the following conditions:

- Select within each of the seven individual measure stratum (e.g., colorectal surgery, hip arthroplasty, etc.) and the 8th SCIP stratum (Table 5.25 in Appendix A).

Quarterly Sample Size
Based on Initial Patient Population Size for the SCIP Measure Set

Hospital's Measure Average Quarterly Stratum Initial Patient Population Size "N"	Minimum Required Stratum Sample Size "n"
>/= 481	49
171-480	10% of Initial Patient Population size
17-170	17
< 17	No sampling; 100% Initial Patient Population required

Monthly Sampling
For hospitals selecting sample cases for SCIP, a modified sampling procedure is required. Hospitals selecting sample cases for this set must ensure that each individual strata population and monthly sample size meets the following conditions:

- Select within each of the seven individual measure stratum (e.g., colorectal surgery, hip arthroplasty, etc.) and the 8th SCIP stratum (Table 5.25 in Appendix A).

Monthly Sample Size
Based on Initial Patient Population Size for the SCIP Measure Set

Hospital's Measure Average Monthly Stratum Initial Patient Population Size "N"	Minimum Required Stratum Sample Size "n"
>/= 151	16
61-150	10% of Initial Patient Population size
6-60	6
<6	No sampling; 100% Initial Patient Population required

All of the SCIP measures´ specific exclusion criteria are used to filter out cases that do not belong in the measure denominator.

2a.24 Data Source (*Check the source(s) for which the measure is specified and tested)*
Paper medical record/flow-sheet, Electronic administrative data/claims, Electronic Health/Medical Record

2a.25 Data source/data collection instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
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

2a.26-28 Data source/data collection instrument reference web page URL or attachment: Attachment SCIPCARTpapertool_10.01.10-634335406825241967.doc

2a.29-31 Data dictionary/code table web page URL or attachment: URL

http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228754600169

2a.32-35 Level of Measurement/Analysis (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency, Population: national, Program: QIO, Can be measured at all levels

2a.36-37 Care Settings (*Check the setting(s) for which the measure is specified and tested)*
Hospital

2a.38-41 Clinical Services (*Healthcare services being measured, check all that apply*)

TESTING/ANALYSIS

2b. Reliability testing

2b.1 Data/sample *(description of data/sample and size)*: This measure is in use for the Hospital Inpatient Quality Reporting Program. For Q2 2010, the national rate was 95.5%. The number of facilities reporting: 3,561. The number of cases in the denominator: 269,809. The number of cases in the numerator: 257,724.

2b.2 Analytic Method *(type of reliability & rationale, method for testing)*:
Measure has been in use since 2001 and has been continually collected nationally for the Hospital Inpatient Quality Reporting Program since Jan 2007. A predetermined number of charts are requested and submitted to an independent abstraction/validation contractor quarterly. Mismatches are calculated and reported to facilities and are used to determine eligibility for incentives. Facilities must achieve an 80% agreement with CDAC abstractors in addition to agreeing to report measure rates on Hospital Compare.

2b.3 Testing Results *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)*:
Feedback from the hospital abstractors and the independent validation team is collected and incorporated. Reports on mismatches between national abstractors and the independent abstraction/validation contractor are reviewed quarterly. Revisions to data elements are made accordingly.

2b C☐ P☐ M☐ N☐

2c. Validity testing

2c.1 Data/sample *(description of data/sample and size)*: National performance of the measure is monitored by the measure steward with quarterly benchmarks of hospital submitted data developed for distribution to QIOs. Trend reports are also prepared and reviewed. The measure is collecting the information it was designed to collect.

2c.2 Analytic Method *(type of validity & rationale, method for testing)*:
Face validity is systematically assessed by the Technical Expert Panels and the measure is judged to assess the provision of appropriate care for the target population.

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
The measure is collecting the information it was designed to collect, according to expert panel review.

2c C☐ P☐ M☐ N☐

2d. Exclusions Justified

2d.1 Summary of Evidence supporting exclusion(s):
The exclusions used in this measure are the exclusions used for all SCIP measures and are reviewed by the Technical Expert Panel as needed.

2d.2 Citations for Evidence:
NA

2d.3 Data/sample *(description of data/sample and size)*: NA

2d.4 Analytic Method *(type analysis & rationale)*:

2d C☐ P☐ M☐ N☐ NA☐

NA 2d.5 **Testing Results** *(e.g., frequency, variability, sensitivity analyses)*: NA	
2e. Risk Adjustment for Outcomes/ Resource Use Measures 2e.1 **Data/sample** *(description of data/sample and size)*: NA 2e.2 **Analytic Method** *(type of risk adjustment, analysis, & rationale)*: NA 2e.3 **Testing Results** *(risk model performance metrics)*: NA 2e.4 **If outcome or resource use measure is not risk adjusted, provide rationale:** This is a process measure.	**2e** C☐ P☐ M☐ N☐ NA ☐
2f. Identification of Meaningful Differences in Performance 2f.1 **Data/sample from Testing or Current Use** *(description of data/sample and size)*: Measure rate trends are reviewed every quarter, using a rolling 5 quarters of national hospital submitted data. 2f.2 **Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*: Analysts review quarterly benchmarks and trends to identify differences in performance scores and investigate the possible causes. If measure specifications (algorithms, data elements) are causing the difference in performance, they are reviewed for possible updates by the subject matter experts. This measure has had consistent rates of performance the last several quarters. 2f.3 **Provide 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)*: A trends report is provided with this submission.	**2f** C☐ P☐ M☐ N☐
2g. Comparability of Multiple Data Sources/Methods 2g.1 **Data/sample** *(description of data/sample and size)*: Currently, this measure is collected from the medical record. The medical record can be paper or an EHR. No analysis between chart-abstracted and eMeasure collection has been performed because the eMeasure specifications have not been implemented at this time. 2g.2 **Analytic Method** *(type of analysis & rationale)*: NA 2g.3 **Testing Results** *(e.g., correlation statistics, comparison of rankings)*: NA	**2g** C☐ P☐ M☐ N☐ NA ☐
2h. Disparities in Care 2h.1 **If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: An updated disparities report has been submitted to NQF for review. Data on the range of performance values by decile for the hospital process measures was provided also. 2h.2 **If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:** All of the inpatient quality reporting measures collect this information: Birthdate, Hispanic Ethnicity, Payment Source, Race and Sex. Additional analysis was performed to determine disparities in US region and urban vs rural.	**2h** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific*	**2**

Acceptability of Measure Properties?	
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	**2** **C☐** **P☐** **M☐** **N☐**
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	**Eval Rating**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** In use **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** The measure is currently in use for the Hospital Inpatient Quality Reporting Program under CMS. To receive the APU from Medicare, hospitals agree to report their data and have their measure rates reported on Hospital Compare. http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier1&cid=1121785350606 **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** This measure is also used in the accreditation process for the Joint Commission. It is part of the SCIP measure set, which facilities can choose to report for accreditation purposes. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) **3a.4 Data/sample** *(description of data/sample and size)***:** The measures rates are reported on the website Hospital Compare. **3a.5 Methods** *(e.g., focus group, survey, QI project)***:** Data about interpretability of reported measure rates are collected by the CMS contractor responsible for maintaining Hospital Compare. Data is collected voluntarily via survey of website users. **3a.6 Results** *(qualitative and/or quantitative results and conclusions)***:** NA	**3a** **C☐** **P☐** **M☐** **N☐**
3b/3c. Relation to other NQF-endorsed measures **3b.1 NQF # and Title of similar or related measures:** #527 and #528	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): **3b.2 Are the measure specifications harmonized? If not, why?** Yes, many of the same data elements are used, as this measure is part of the SCIP set.	**3b** **C☐** **P☐** **M☐** **N☐** **NA☐**
3c. Distinctive or Additive Value **3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:**	**3c** **C☐** **P☐**

The antibiotic prophylaxis measures are collected as a set. **5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:** NA	M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	Eval Rating
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)	**4a** C☐ P☐ M☐ N☐
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.** This measure has been retooled for EHRs but has not been tested.	**4b** C☐ P☐ M☐ N☐
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** C☐ P☐ M☐ N☐ NA ☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** Interpretation of data elements will always be a factor, since the instructions for obtaining the data are written by the measure developers. No unintended consequences have been identified with the hair removal measure.	**4d** C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** Specifications (including codes and data elements) are modified every six months according to feedback provided by clinicians and hospital staff collecting data for the measure. Data is available in the medical record and there are no feasibility or implementation issues identified. **4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** The cost associated with measure use is that of data collection only. Many facilities employ quality	**4e** C☐ P☐ M☐ N☐

improvement staff to perform data abstraction and entry. The same employees may develop reports and provide information to clinicians and hospital administration. 4e.3 **Evidence for costs:** No studies have been performed on the cost of implementation. 4e.4 **Business case documentation:** NA	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** **C☐** **P☐** **M☐** **N☐**
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited ☐**
Steering Committee: Do you recommend for endorsement? **Comments:**	**Y☐** **N☐** **A☐**
CONTACT INFORMATION	
Co.1 **Measure Steward (Intellectual Property Owner)** Co.1 **Organization** Centers for Medicare & Medicaid Services, 7500 Security Boulevard , Mail Stop S3-01-02, Baltimore, Maryland, 21244-1850 Co.2 **Point of Contact** Kristie, Baus, MS, RN, kristie.baus@cms.hhs.gov, 410-786-8161-	
Measure Developer If different from Measure Steward Co.3 **Organization** Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-01-02, Baltimore, Maryland, 21244-1850 Co.4 **Point of Contact** Kristie, Baus, MS, RN, kristie.baus@cms.hhs.gov, 410-786-8161-	
Co.5 **Submitter If different from Measure Steward POC** Wanda, Johnson, RN, wjohnson@ofmq.com, 405-302-3278-, Oklahoma Foundation for Medical Quality	
Co.6 **Additional organizations that sponsored/participated in measure development** This measure is aligned with the Joint Commission.	
ADDITIONAL INFORMATION	
Workgroup/Expert Panel involved in measure development Ad.1 **Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.** The Surgical Care Improvement Project´s Infection TEP was involved in this measure´s development and remains involved in its maintenance.	
Ad.2 **If adapted, provide name of original measure:** Ad.3-5 **If adapted, provide original specifications URL or attachment**	
Measure Developer/Steward Updates and Ongoing Maintenance Ad.6 **Year the measure was first released:** 2001	

Ad.7 Month and Year of most recent revision: 10, 2010 **Ad.8 What is your frequency for review/update of this measure?** Every 6 months **Ad.9 When is the next scheduled review/update for this measure?** 04, 2011
Ad.10 Copyright statement/disclaimers: Trend Report (BM= Benchmark, rate = national score) Q209 BM: 99.3 Rate: 92.9 Q309 BM: 99.4 Rate 93.5 Q409 BM: 99.5 Rate 94.2 Q110 BM: 99.6 Rate 94.8 Q210 BM: 99.7 Rate 95.5
Ad.11 -13 Additional Information web page URL or attachment: Attachment IP Measures Disp_2009-634369272164127328.xls
Date of Submission (*MM/DD/YY*)**:** 03/28/2011

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Race/Ethnicity (3% of cases were excluded due to missing data on race/ethnicity)

Measures and Race/ethnicity group	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
Caucasian	247,145	251,158	98.4	ref.	ref.
African-American	36,868	37,747	97.7	0.68 (0.63-0.73)	<0.001
Hispanic	26,561	27,316	97.2	0.57 (0.53-0.62)	<0.001
Asian/Pacific Islander	7,346	7,472	98.3	0.95 (0.79-1.13)	0.548
Native American	1,074	1,087	98.8	1.34 (0.78-2.32)	0.293
AMI2: Aspirin at discharge					
Caucasian	305,754	310,489	98.5	ref.	ref.
African-American	39,545	40,591	97.4	0.59 (0.55-0.63)	<0.001
Hispanic	27,791	28,805	96.5	0.42 (0.40-0.45)	<0.001
Asian/Pacific Islander	7,694	7,854	98.0	0.74 (0.64-0.87)	<0.001
Native American	1,908	1,935	98.6	1.09 (0.75-1.60)	0.643
AMI3: ACEI or ARB for LVSD					
Caucasian	54,767	57,482	95.3	ref.	ref.
African-American	8,642	9,024	95.8	1.12 (1.01-1.25)	0.040
Hispanic	5,591	5,896	94.8	0.91 (0.80-1.03)	0.123
Asian/Pacific Islander	1,302	1,372	94.9	0.92 (0.72-1.18)	0.514
Native American	371	393	94.4	0.84 (0.54-1.29)	0.416
AMI4: Smoking cessation counseling					
Caucasian	103,977	104,611	99.4	ref.	ref.
African-American	16,611	16,741	99.2	0.78 (0.64-0.94)	0.010
Hispanic	7,671	7,757	98.9	0.54 (0.43-0.68)	<0.001
Asian/Pacific Islander	1,720	1,747	98.5	0.39 (0.26-0.57)	<0.001
Native American	753	767	98.2	0.33 (0.19-0.56)	<0.001
AMI5: Beta-blocker at discharge					
Caucasian	298,954	304,013	98.3	ref.	ref.
African-American	39,112	40,008	97.8	0.74 (0.69-0.79)	<0.001
Hispanic	27,331	28,382	96.3	0.44 (0.41-0.47)	<0.001

Asian/Pacific Islander	7,602	7,738	98.2	0.95 (0.80-1.12)	0.526
Native American	1,841	1,882	97.8	0.76 (0.56-1.04)	0.083
AMI7a: Fibrinolytic within 30 minutes					
Caucasian	651	1,169	55.7	ref.	ref.
African-American	73	157	46.5	0.69 (0.50-0.97)	0.030
Hispanic	190	417	45.6	0.67 (0.53-0.83)	<0.001
Asian/Pacific Islander	36	61	59.0	1.15 (0.68-1.93)	0.610
Native American	1	3	33.3	0.40 (0.04-4.40)	0.452
AMI8a: PCI within 90 minutes					
Caucasian	38,044	43,171	88.1	ref.	ref.
African-American	3,448	4,234	81.4	0.59 (0.54-0.64)	<0.001
Hispanic	3,297	3,936	83.8	0.70 (0.64-0.76)	<0.001
Asian/Pacific Islander	1,079	1,237	87.2	0.92 (0.78-1.09)	0.337
Native American	160	189	84.7	0.74 (0.50-1.11)	0.143
HF1: Discharge instructions					
Caucasian	357,746	414,742	86.3	ref.	ref.
African-American	124,070	143,689	86.3	1.01 (0.99-1.03)	0.400
Hispanic	44,786	51,690	86.6	1.03 (1.01-1.06)	0.016
Asian/Pacific Islander	9,895	11,375	87.0	1.07 (1.01-1.13)	0.025
Native American	2,351	3,083	76.3	0.51 (0.47-0.56)	<0.001
HF2: Evaluation of LV function					
Caucasian	521,142	535,940	97.2	ref.	ref.
African-American	159,661	163,219	97.8	1.27 (1.23-1.32)	<0.001
Hispanic	55,388	57,714	96.0	0.68 (0.65-0.71)	<0.001
Asian/Pacific Islander	12,720	13,004	97.8	1.27 (1.13-1.43)	<0.001
Native American	3,201	3,416	93.7	0.42 (0.37-0.49)	<0.001
HF3: ACEI or ARB for LVSD					
Caucasian	145,067	155,808	93.1	ref.	ref.
African-American	66,217	69,597	95.1	1.45 (1.39-1.51)	<0.001
Hispanic	18,769	20,068	93.5	1.07 (1.01-1.14)	0.026
Asian/Pacific Islander	3,777	3,962	95.3	1.51 (1.30-1.75)	<0.001
Native American	1,173	1,278	91.8	0.83 (0.68-1.01)	0.064
HF4: Smoking cessation counseling					
Caucasian	76,177	77,858	97.8	ref.	ref.

African-American	44,071	44,760	98.5	1.41 (1.29-1.54)	<0.001
Hispanic	7,273	7,423	98.0	1.07 (0.90-1.27)	0.432
Asian/Pacific Islander	1,375	1,413	97.3	0.80 (0.58-1.11)	0.176
Native American	692	732	94.5	0.38 (0.28-0.53)	<0.001
PN2: Pnemococal vaccination given or screened for					
Caucasian	378,259	408,034	92.7	ref.	ref.
African-American	34,705	39,186	88.6	0.61 (0.59-0.63)	<0.001
Hispanic	24,135	28,528	84.6	0.43 (0.42-0.45)	<0.001
Asian/Pacific Islander	8,804	9,900	88.9	0.63 (0.59-0.67)	<0.001
Native American	2,310	2,640	87.5	0.55 (0.49-0.62)	<0.001
PN3a: Initial blood culture within 24 hours - ICU only					
Caucasian	78,108	82,387	94.8	ref.	ref.
African-American	12,551	13,078	96.0	1.30 (1.19-1.43)	<0.001
Hispanic	7,338	7,863	93.3	0.77 (0.70-0.84)	<0.001
Asian/Pacific Islander	2,199	2,271	96.8	1.67 (1.32-2.12)	<0.001
Native American	776	846	91.7	0.61 (0.47-0.78)	<0.001
PN3b: Initial blood culture before first antibiotic dose - ED only					
Caucasian	361,802	380,083	95.2	ref.	ref.
African-American	56,541	60,416	93.6	0.74 (0.71-0.76)	<0.001
Hispanic	34,169	37,132	92.0	0.58 (0.56-0.61)	<0.001
Asian/Pacific Islander	9,388	9,889	94.9	0.95 (0.86-1.04)	0.240
Native American	3,058	3,402	89.9	0.45 (0.40-0.50)	<0.001
PN4: Smoking cessation counseling					
Caucasian	153,759	158,876	96.8	ref.	ref.
African-American	30,859	31,710	97.3	1.21 (1.12-1.30)	<0.001
Hispanic	9,885	10,230	96.6	0.95 (0.85-1.07)	0.400
Asian/Pacific Islander	1,689	1,759	96.0	0.80 (0.63-1.02)	0.074
Native American	1,722	1,940	88.8	0.26 (0.23-0.30)	<0.001
PN5c: First antibiotic dose within 6 hours					
Caucasian	402,180	421,893	95.3	ref.	ref.
African-American	60,989	66,036	92.4	0.59 (0.57-0.61)	<0.001
Hispanic	35,145	39,094	89.9	0.44 (0.42-0.45)	<0.001
Asian/Pacific Islander	9,399	9,865	95.3	0.99 (0.90-1.09)	0.812
Native American	3,430	3,752	91.4	0.52 (0.47-0.59)	<0.001

PN6: Antibioti selection consistent with guidelines					
Caucasian	254,116	279,291	91.0	ref.	ref.
African-American	35,023	38,201	91.7	1.09 (1.05-1.13)	<0.001
Hispanic	25,350	28,361	89.4	0.83 (0.80-0.87)	<0.001
Asian/Pacific Islander	6,093	6,689	91.1	1.01 (0.93-1.10)	0.770
Native American	2,570	2,922	88.0	0.72 (0.65-0.81)	<0.001
PN7: Influenza vaccination given or screened for					
Caucasian	266,920	293,208	91.0	ref.	ref.
African-American	31,910	37,007	86.2	0.62 (0.60-0.64)	<0.001
Hispanic	18,854	22,505	83.8	0.51 (0.49-0.53)	<0.001
Asian/Pacific Islander	5,702	6,539	87.2	0.67 (0.62-0.72)	<0.001
Native American	1,927	2,405	80.1	0.40 (0.36-0.44)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
Caucasian	827,536	860,067	96.2	ref.	ref.
African-American	95,484	99,527	95.9	0.93 (0.90-0.96)	<0.001
Hispanic	60,439	64,806	93.3	0.54 (0.53-0.56)	<0.001
Asian/Pacific Islander	14,743	15,282	96.5	1.08 (0.99-1.17)	0.101
Native American	4,037	4,325	93.3	0.55 (0.49-0.62)	<0.001
SCIP2: Prophylactic antibiotic consistent with guidelines					
Caucasian	848,411	868,974	97.6	ref.	ref.
African-American	97,576	100,464	97.1	0.82 (0.79-0.85)	<0.001
Hispanic	62,778	64,991	96.6	0.69 (0.66-0.72)	<0.001
Asian/Pacific Islander	15,171	15,547	97.6	0.98 (0.88-1.08)	0.672
Native American	4,230	4,360	97.0	0.79 (0.66-0.94)	0.008
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
Caucasian	766,551	819,715	93.5	ref.	ref.
African-American	87,315	94,468	92.4	0.85 (0.83-0.87)	<0.001
Hispanic	54,461	61,420	88.7	0.54 (0.53-0.56)	<0.001
Asian/Pacific Islander	13,218	14,358	92.1	0.80 (0.76-0.85)	<0.001
Native American	3,812	4,103	92.9	0.91 (0.81-1.02)	0.116
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
Caucasian	134,822	144,908	93.0	ref.	ref.
African-American	10,742	11,722	91.6	0.82 (0.77-0.88)	<0.001
Hispanic	11,031	12,520	88.1	0.55 (0.52-0.59)	<0.001

Asian/Pacific Islander	3,437	3,773	91.1	0.77 (0.68-0.86)	<0.001
Native American	706	766	92.2	0.88 (0.68-1.15)	0.344
SCIP6: appropriate hair removal					
Caucasian	1,222,603	1,232,305	99.2	ref.	ref.
African-American	149,984	151,395	99.1	0.84 (0.80-0.89)	<0.001
Hispanic	95,326	97,273	98.0	0.39 (0.37-0.41)	<0.001
Asian/Pacific Islander	23,368	23,575	99.1	0.90 (0.78-1.03)	0.119
Native American	6,390	6,543	97.7	0.33 (0.28-0.39)	<0.001
SCIPCARD2: Perioperative period beta blocker					
Caucasian	327,860	359,462	91.2	ref.	ref.
African-American	34,505	38,004	90.8	0.95 (0.92-0.99)	0.007
Hispanic	17,805	20,128	88.5	0.74 (0.71-0.77)	<0.001
Asian/Pacific Islander	5,128	5,770	88.9	0.77 (0.71-0.84)	<0.001
Native American	1,312	1,493	87.9	0.70 (0.60-0.82)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
Caucasian	343,547	367,129	93.6	ref.	ref.
African-American	49,075	52,658	93.2	0.94 (0.91-0.98)	<0.001
Hispanic	27,199	30,224	90.0	0.62 (0.59-0.64)	<0.001
Asian/Pacific Islander	7,406	8,195	90.4	0.64 (0.60-0.69)	<0.001
Native American	1,999	2,208	90.5	0.66 (0.57-0.76)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
Caucasian	334,443	365,471	91.5	ref.	ref.
African-American	47,804	52,220	91.5	1.00 (0.97-1.04)	0.798
Hispanic	26,376	29,811	88.5	0.71 (0.69-0.74)	<0.001
Asian/Pacific Islander	7,241	8,126	89.1	0.76 (0.71-0.81)	<0.001
Native American	1,942	2,183	89.0	0.75 (0.65-0.86)	<0.001

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Gender (less than 0.1% of cases were excluded due to missing data on gender)

Measures and gender	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
Female	132,222	135,450	97.6	ref.	ref.
Male	197,136	199,829	98.7	1.79 (1.70-1.88)	<0.001
AMI2: Aspirin at discharge					
Female	150,930	154,577	97.6	ref.	ref.
Male	247,653	251,152	98.6	1.71 (1.63-1.79)	<0.001
AMI3: ACEI or ARB for LVSD					
Female	26,127	27,376	95.4	ref.	ref.
Male	47,156	49,502	95.3	0.96 (0.90-1.03)	0.269
AMI4: Smoking cessation counseling					
Female	42,885	43,241	99.2	ref.	ref.
Male	93,180	93,741	99.4	1.38 (1.21-1.58)	<0.001
AMI5: Beta-blocker at discharge					
Female	149,171	152,804	97.6	ref.	ref.
Male	240,965	244,715	98.5	1.56 (1.49-1.64)	<0.001
AMI7a: Fibrinolytic within 30 minutes					
Female	254	523	48.6	ref.	ref.
Male	730	1,347	54.2	1.25 (1.02-1.53)	0.029
AMI8a: PCI within 90 minutes					
Female	12,629	15,029	84.0	ref.	ref.
Male	35,545	40,118	88.6	1.48 (1.40-1.56)	<0.001
HF1: Discharge instructions					
Female	264,674	308,679	85.7	ref.	ref.
Male	286,692	330,544	86.7	1.09 (1.07-1.10)	<0.001
HF2: Evaluation of LV function					
Female	391,232	403,675	96.9	ref.	ref.
Male	378,142	387,472	97.6	1.29 (1.25-1.32)	<0.001
HF3: ACEI or ARB for LVSD					
Female	92,111	98,257	93.7	ref.	ref.
Male	148,513	158,409	93.8	1.00 (0.97-1.03)	0.936
HF4: Smoking cessation counseling					

Female	51,445	52,630	97.7	ref.	ref.
Male	80,801	82,294	98.2	1.25 (1.15-1.35)	<0.001
PN2: Pnemococal vaccination given or screened for					
Female	247,221	269,382	91.8	ref.	ref.
Male	212,145	231,563	91.6	0.98 (0.96-1.00)	0.042
PN3a: Initial blood culture within 24 hours - ICU only					
Female	50,079	52,932	94.6	ref.	ref.
Male	53,544	56,305	95.1	1.10 (1.05-1.17)	<0.001
PN3b: Initial blood culture before first antibiotic dose - ED only					
Female	246,104	260,181	94.6	ref.	ref.
Male	230,916	243,503	94.8	1.05 (1.02-1.08)	<0.001
PN4: Smoking cessation counseling					
Female	103,237	106,615	96.8	ref.	ref.
Male	99,296	102,754	96.6	0.94 (0.90-0.99)	0.011
PN5c: First antibiotic dose within 6 hours					
Female	272,016	288,698	94.2	ref.	ref.
Male	252,643	266,222	94.9	1.14 (1.11-1.17)	<0.001
PN6: Antibioti selection consistent with guidelines					
Female	175,954	193,373	91.0	ref.	ref.
Male	156,410	172,235	90.8	0.98 (0.96-1.00)	0.059
PN7: Influenza vaccination given or screened for					
Female	180,348	200,180	90.1	ref.	ref.
Male	153,242	170,972	89.6	0.95 (0.93-0.97)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
Female	660,133	687,675	96.0	ref.	ref.
Male	383,816	399,901	96.0	1.00 (0.98-1.02)	0.660
SCIP2: Prophylactic antibiotic consistent with guidelines					
Female	672,428	691,674	97.2	ref.	ref.
Male	398,658	406,588	98.0	1.44 (1.40-1.48)	<0.001
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
Female	613,378	657,129	93.3	ref.	ref.
Male	351,165	378,744	92.7	0.91 (0.89-0.92)	<0.001
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
Female	52,328	56,457	92.7	ref.	ref.
Male	114,589	124,004	92.4	0.96 (0.92-1.00)	0.038

SCIP6: appropriate hair removal					
Female	944,375	951,265	99.3	ref.	ref.
Male	613,124	620,263	98.8	0.63 (0.61-0.65)	<0.001
SCIPCARD2: Perioperative period beta blocker					
Female	210,810	232,468	90.7	ref.	ref.
Male	189,354	207,438	91.3	1.08 (1.05-1.10)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
Female	266,908	284,212	93.9	ref.	ref.
Male	177,139	192,153	92.2	0.76 (0.75-0.78)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
Female	260,379	282,821	92.1	ref.	ref.
Male	171,935	190,847	90.1	0.78 (0.77-0.80)	<0.001

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Age-Group

Measures and age group	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
under 65 years	141,150	142,677	98.9	ref.	ref.
65 to 74 years	69,462	70,636	98.3	0.64 (0.59-0.69)	<0.001
75 to 84 years	68,661	70,270	97.7	0.46 (0.43-0.50)	<0.001
85 or older	50,094	51,705	96.9	0.34 (0.31-0.36)	<0.001
AMI2: Aspirin at discharge					
under 65 years	188,910	191,432	98.7	ref.	ref.
65 to 74 years	86,865	88,378	98.3	0.77 (0.72-0.82)	<0.001
75 to 84 years	76,528	78,185	97.9	0.62 (0.58-0.66)	<0.001
85 or older	46,290	47,744	97.0	0.42 (0.40-0.45)	<0.001
AMI3: ACEI or ARB for LVSD					
under 65 years	30,729	31,955	96.2	ref.	ref.
65 to 74 years	16,782	17,608	95.3	0.81 (0.74-0.89)	<0.001
75 to 84 years	16,144	17,053	94.7	0.71 (0.65-0.77)	<0.001
85 or older	9,631	10,265	93.8	0.61 (0.55-0.67)	<0.001
AMI4: Smoking cessation counseling					
under 65 years	101,819	102,305	99.5	ref.	ref.
65 to 74 years	23,569	23,794	99.1	0.50 (0.43-0.59)	<0.001
75 to 84 years	8,919	9,074	98.3	0.27 (0.23-0.33)	<0.001
85 or older	1,762	1,813	97.2	0.16 (0.12-0.22)	<0.001
AMI5: Beta-blocker at discharge					
under 65 years	181,451	184,294	98.5	ref.	ref.
65 to 74 years	85,291	86,894	98.2	0.83 (0.78-0.89)	<0.001
75 to 84 years	76,749	78,361	97.9	0.75 (0.70-0.79)	<0.001
85 or older	46,654	47,979	97.2	0.55 (0.52-0.59)	<0.001
AMI7a: Fibrinolytic within 30 minutes					
under 65 years	648	1,212	53.5	ref.	ref.
65 to 74 years	194	358	54.2	1.03 (0.81-1.30)	0.810
75 to 84 years	93	202	46.0	0.74 (0.55-1.00)	0.051
85 or older	49	98	50.0	0.87 (0.58-1.31)	0.508
AMI8a: PCI within 90 minutes					
under 65 years	31,621	35,686	88.6	ref.	ref.
65 to 74 years	9,116	10,546	86.4	0.82 (0.77-0.87)	<0.001
75 to 84 years	5,398	6,466	83.5	0.65 (0.60-0.70)	<0.001
85 or older	2,040	2,451	83.2	0.64 (0.57-0.71)	<0.001
HF1: Discharge instructions					
under 65 years	178,658	207,594	86.1	ref.	ref.
65 to 74 years	123,528	143,712	86.0	0.99 (0.97-1.01)	0.373
75 to 84 years	151,451	175,244	86.4	1.03 (1.01-1.05)	0.001
85 or older	97,755	112,707	86.7	1.06 (1.04-1.08)	<0.001
HF2: Evaluation of LV function					

under 65 years	216,443	221,533	97.7	ref.	ref.
65 to 74 years	162,507	166,888	97.4	0.87 (0.84-0.91)	<0.001
75 to 84 years	220,926	227,028	97.3	0.85 (0.82-0.88)	<0.001
85 or older	169,548	175,750	96.5	0.64 (0.62-0.67)	<0.001
HF3: ACEI or ARB for LVSD					
under 65 years	95,238	99,651	95.6	ref.	ref.
65 to 74 years	52,803	56,622	93.3	0.64 (0.61-0.67)	<0.001
75 to 84 years	58,917	63,666	92.5	0.57 (0.55-0.60)	<0.001
85 or older	33,681	36,742	91.7	0.51 (0.49-0.53)	<0.001
HF4: Smoking cessation counseling					
under 65 years	78,879	80,061	98.5	ref.	ref.
65 to 74 years	31,278	32,007	97.7	0.64 (0.59-0.71)	<0.001
75 to 84 years	17,689	18,260	96.9	0.46 (0.42-0.51)	<0.001
85 or older	4,402	4,599	95.7	0.33 (0.29-0.39)	<0.001
PN2: Pnemococal vaccination given or screened for					
under 65 years	--	--	--	--	--
65 to 74 years	154,049	168,347	91.5	ref.	ref.
75 to 84 years	180,579	195,787	92.2	1.10 (1.08-1.13)	<0.001
85 or older	124,772	136,849	91.2	0.96 (0.93-0.98)	0.001
PN3a: Initial blood culture within 24 hours - ICU only					
under 65 years	43,154	45,370	95.1	ref.	ref.
65 to 74 years	23,165	24,488	94.6	0.90 (0.84-0.96)	0.003
75 to 84 years	23,777	25,070	94.8	0.94 (0.88-1.01)	0.111
85 or older	13,530	14,312	94.5	0.89 (0.82-0.97)	0.006
PN3b: Initial blood culture before first antibiotic dose - ED only					
under 65 years	180,506	192,602	93.7	ref.	ref.
65 to 74 years	92,223	97,052	95.0	1.28 (1.24-1.32)	<0.001
75 to 84 years	116,268	121,901	95.4	1.38 (1.34-1.43)	<0.001
85 or older	88,051	92,159	95.5	1.44 (1.39-1.49)	<0.001
PN4: Smoking cessation counseling					
under 65 years	138,481	142,258	97.3	ref.	ref.
65 to 74 years	39,066	40,713	96.0	0.65 (0.61-0.69)	<0.001
75 to 84 years	20,330	21,389	95.0	0.52 (0.49-0.56)	<0.001
85 or older	4,673	5,027	93.0	0.36 (0.32-0.40)	<0.001
PN5c: First antibiotic dose within 6 hours					
under 65 years	196,974	210,170	93.7	ref.	ref.
65 to 74 years	103,529	109,243	94.8	1.21 (1.18-1.25)	<0.001
75 to 84 years	128,404	134,912	95.2	1.32 (1.28-1.36)	<0.001
85 or older	95,798	100,641	95.2	1.33 (1.28-1.37)	<0.001
PN6: Antibioti selection consistent with guidelines					
under 65 years	145,078	158,844	91.3	ref.	ref.
65 to 74 years	60,719	67,599	89.8	0.84 (0.81-0.86)	<0.001
75 to 84 years	74,042	81,558	90.8	0.93 (0.91-0.96)	<0.001
85 or older	52,553	57,638	91.2	0.98 (0.95-1.01)	0.255
PN7: Influenza vaccination given or screened for					
under 65 years	92,150	105,920	87.0	ref.	ref.
65 to 74 years	80,824	89,267	90.5	1.43 (1.39-1.47)	<0.001

75 to 84 years	94,637	103,395	91.5	1.61 (1.57-1.66)	<0.001
85 or older	65,988	72,586	90.9	1.49 (1.45-1.54)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
under 65 years	543,747	565,392	96.2	ref.	ref.
65 to 74 years	264,596	275,189	96.2	0.99 (0.97-1.02)	0.637
75 to 84 years	185,731	194,018	95.7	0.89 (0.87-0.92)	<0.001
85 or older	49,930	53,035	94.1	0.64 (0.62-0.67)	<0.001
SCIP2: Prophylactic antibiotic consistent with guidelines					
under 65 years	554,132	569,841	97.2	ref.	ref.
65 to 74 years	272,719	278,267	98.0	1.39 (1.35-1.44)	<0.001
75 to 84 years	192,365	196,738	97.8	1.25 (1.21-1.29)	<0.001
85 or older	51,927	53,474	97.1	0.95 (0.90-1.00)	0.066
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
under 65 years	509,115	543,621	93.7	ref.	ref.
65 to 74 years	243,668	262,144	93.0	0.89 (0.88-0.91)	<0.001
75 to 84 years	168,265	182,048	92.4	0.83 (0.81-0.84)	<0.001
85 or older	43,548	48,116	90.5	0.65 (0.63-0.67)	<0.001
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
under 65 years	72,979	79,327	92.0	ref.	ref.
65 to 74 years	52,359	56,792	92.2	1.03 (0.99-1.07)	0.185
75 to 84 years	36,879	39,404	93.6	1.27 (1.21-1.33)	<0.001
85 or older	4,704	4,942	95.2	1.72 (1.51-1.96)	<0.001
SCIP6: appropriate hair removal					
under 65 years	810,303	818,220	99.0	ref.	ref.
65 to 74 years	380,445	383,750	99.1	1.12 (1.08-1.17)	<0.001
75 to 84 years	279,516	281,752	99.2	1.22 (1.17-1.28)	<0.001
85 or older	87,319	87,891	99.3	1.49 (1.37-1.62)	<0.001
SCIPCARD2: Perioperative period beta blocker					
under 65 years	143,202	157,742	90.8	ref.	ref.
65 to 74 years	125,183	136,865	91.5	1.09 (1.06-1.12)	<0.001
75 to 84 years	101,842	111,827	91.1	1.04 (1.01-1.06)	0.010
85 or older	29,959	33,499	89.4	0.86 (0.83-0.89)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
under 65 years	204,866	222,992	91.9	ref.	ref.
65 to 74 years	111,168	117,886	94.3	1.46 (1.42-1.51)	<0.001
75 to 84 years	92,459	97,769	94.6	1.54 (1.49-1.59)	<0.001
85 or older	35,581	37,747	94.3	1.45 (1.39-1.52)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
under 65 years	199,284	221,436	90.0	ref.	ref.
65 to 74 years	108,467	117,367	92.4	1.35 (1.32-1.39)	<0.001
75 to 84 years	90,083	97,336	92.5	1.38 (1.34-1.42)	<0.001
85 or older	34,507	37,557	91.9	1.26 (1.21-1.31)	<0.001

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Census Region

Measures and census region	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
South	126,608	129,145	98.0	ref.	ref.
Midwest	75,072	76,242	98.5	1.29 (1.20-1.38)	<0.001
Northeast	62,335	63,302	98.5	1.29 (1.20-1.39)	<0.001
West	61,600	62,432	98.7	1.48 (1.37-1.61)	<0.001
US Territories	3,752	4,167	90.0	0.18 (0.16-0.20)	<0.001
AMI2: Aspirin at discharge					
South	154,361	157,475	98.0	ref.	ref.
Midwest	96,702	98,082	98.6	1.41 (1.33-1.51)	<0.001
Northeast	72,945	73,951	98.6	1.46 (1.36-1.57)	<0.001
West	71,443	72,548	98.5	1.30 (1.22-1.40)	<0.001
US Territories	3,142	3,683	85.3	0.12 (0.11-0.13)	<0.001
AMI3: ACEI or ARB for LVSD					
South	30,162	31,629	95.4	ref.	ref.
Midwest	17,573	18,369	95.7	1.07 (0.98-1.17)	0.114
Northeast	13,443	14,124	95.2	0.96 (0.87-1.05)	0.392
West	11,325	11,875	95.4	1.00 (0.91-1.11)	0.977
US Territories	783	884	88.6	0.38 (0.30-0.47)	<0.001
AMI4: Smoking cessation counseling					
South	59,052	59,326	99.5	ref.	ref.
Midwest	34,282	34,529	99.3	0.64 (0.54-0.77)	<0.001
Northeast	21,314	21,497	99.1	0.54 (0.45-0.65)	<0.001
West	20,782	20,940	99.2	0.61 (0.50-0.74)	<0.001
US Territories	639	694	92.1	0.05 (0.04-0.07)	<0.001
AMI5: Beta-blocker at discharge					
South	150,602	153,698	98.0	ref.	ref.
Midwest	94,600	96,058	98.5	1.33 (1.25-1.42)	<0.001
Northeast	72,919	73,919	98.6	1.50 (1.40-1.61)	<0.001
West	68,776	70,048	98.2	1.11 (1.04-1.19)	0.002
US Territories	3,248	3,805	85.4	0.12 (0.11-0.13)	<0.001
AMI7a: Fibrinolytic within 30 minutes					
South	386	691	55.9	ref.	ref.
Midwest	71	157	45.2	0.65 (0.46-0.92)	0.016
Northeast	114	221	51.6	0.84 (0.62-1.14)	0.266
West	325	577	56.3	1.02 (0.82-1.27)	0.868
US Territories	88	224	39.3	0.51 (0.38-0.70)	<0.001
AMI8a: PCI within 90 minutes					
South	18,249	21,033	86.8	ref.	ref.
Midwest	12,047	13,530	89.0	1.24 (1.16-1.33)	<0.001
Northeast	7,776	8,945	86.9	1.01 (0.94-1.09)	0.695
West	10,077	11,545	87.3	1.05 (0.98-1.12)	0.182

US Territories	26	96	27.1	0.06 (0.04-0.09)	<0.001
HF1: Discharge instructions					
South	230,620	268,753	85.8	ref.	ref.
Midwest	123,214	142,800	86.3	1.04 (1.02-1.06)	<0.001
Northeast	104,441	118,681	88.0	1.21 (1.19-1.24)	<0.001
West	87,789	101,987	86.1	1.02 (1.00-1.04)	0.037
US Territories	5,328	7,036	75.7	0.52 (0.49-0.55)	<0.001
HF2: Evaluation of LV function					
South	313,881	323,530	97.0	ref.	ref.
Midwest	177,519	182,711	97.2	1.05 (1.02-1.09)	0.004
Northeast	154,546	157,057	98.4	1.89 (1.81-1.98)	<0.001
West	117,503	120,882	97.2	1.07 (1.03-1.11)	0.001
US Territories	5,975	7,019	85.1	0.18 (0.16-0.19)	<0.001
HF3: ACEI or ARB for LVSD					
South	102,341	109,272	93.7	ref.	ref.
Midwest	54,335	57,985	93.7	1.01 (0.97-1.05)	0.700
Northeast	44,314	47,239	93.8	1.03 (0.98-1.07)	0.259
West	37,449	39,660	94.4	1.15 (1.09-1.21)	<0.001
US Territories	2,200	2,525	87.1	0.46 (0.41-0.52)	<0.001
HF4: Smoking cessation counseling					
South	60,779	61,825	98.3	ref.	ref.
Midwest	30,645	31,366	97.7	0.73 (0.66-0.81)	<0.001
Northeast	20,880	21,315	98.0	0.83 (0.74-0.92)	<0.001
West	19,359	19,792	97.8	0.77 (0.69-0.86)	<0.001
US Territories	585	629	93.0	0.23 (0.17-0.31)	<0.001
PN2: Pnemococal vaccination given or screened for					
South	179,960	194,612	92.5	ref.	ref.
Midwest	114,202	124,453	91.8	0.91 (0.88-0.93)	<0.001
Northeast	88,746	95,893	92.5	1.01 (0.98-1.04)	0.466
West	75,360	83,017	90.8	0.80 (0.78-0.82)	<0.001
US Territories	1,132	3,008	37.6	0.05 (0.05-0.05)	<0.001
PN3a: Initial blood culture within 24 hours - ICU only					
South	41,731	43,940	95.0	ref.	ref.
Midwest	24,196	25,563	94.7	0.94 (0.87-1.00)	0.065
Northeast	16,787	17,632	95.2	1.05 (0.97-1.14)	0.225
West	20,703	21,725	95.3	1.07 (0.99-1.16)	0.072
US Territories	209	380	55.0	0.06 (0.05-0.08)	<0.001
PN3b: Initial blood culture before first antibiotic dose - ED only					
South	187,438	197,520	94.9	ref.	ref.
Midwest	110,172	115,477	95.4	1.12 (1.08-1.16)	<0.001
Northeast	93,600	98,873	94.7	0.95 (0.92-0.99)	0.008
West	83,935	89,171	94.1	0.86 (0.83-0.89)	<0.001
US Territories	1,903	2,673	71.2	0.13 (0.12-0.14)	<0.001
PN4: Smoking cessation counseling					
South	91,072	93,604	97.3	ref.	ref.
Midwest	48,987	51,087	95.9	0.65 (0.61-0.69)	<0.001
Northeast	32,410	33,325	97.3	0.98 (0.91-1.06)	0.695

West	29,466	30,694	96.0	0.67 (0.62-0.72)	<0.001
US Territories	615	677	90.8	0.28 (0.21-0.36)	<0.001
PN5c: First antibiotic dose within 6 hours					
South	208,883	220,861	94.6	ref.	ref.
Midwest	128,036	134,173	95.4	1.20 (1.16-1.23)	<0.001
Northeast	96,895	102,680	94.4	0.96 (0.93-0.99)	0.014
West	88,422	93,297	94.8	1.04 (1.01-1.08)	0.024
US Territories	2,469	3,955	62.4	0.10 (0.09-0.10)	<0.001
PN6: Antibioti selection consistent with guidelines					
South	134,164	147,904	90.7	ref.	ref.
Midwest	78,294	86,405	90.6	0.99 (0.96-1.02)	0.434
Northeast	59,152	63,980	92.5	1.25 (1.21-1.30)	<0.001
West	58,295	63,887	91.2	1.07 (1.03-1.10)	<0.001
US Territories	2,487	3,463	71.8	0.26 (0.24-0.28)	<0.001
PN7: Influenza vaccination given or screened for					
South	136,798	151,103	90.5	ref.	ref.
Midwest	82,023	90,887	90.2	0.97 (0.94-0.99)	0.021
Northeast	60,341	66,389	90.9	1.04 (1.01-1.08)	0.008
West	53,674	60,817	88.3	0.79 (0.76-0.81)	<0.001
US Territories	763	1,972	38.7	0.07 (0.06-0.07)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
South	394,545	409,842	96.3	ref.	ref.
Midwest	266,459	276,954	96.2	0.98 (0.96-1.01)	0.223
Northeast	193,461	200,392	96.5	1.08 (1.05-1.11)	<0.001
West	183,368	192,227	95.4	0.80 (0.78-0.82)	<0.001
US Territories	6,171	8,219	75.1	0.12 (0.11-0.12)	<0.001
SCIP2: Prophylactic antibiotic consistent with guidelines					
South	403,132	414,194	97.3	ref.	ref.
Midwest	273,589	279,578	97.9	1.25 (1.21-1.29)	<0.001
Northeast	197,917	202,575	97.7	1.17 (1.13-1.21)	<0.001
West	189,102	194,077	97.4	1.04 (1.01-1.08)	0.015
US Territories	7,403	7,896	93.8	0.41 (0.38-0.45)	<0.001
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
South	361,060	388,513	92.9	ref.	ref.
Midwest	248,442	264,681	93.9	1.16 (1.14-1.19)	<0.001
Northeast	180,683	191,769	94.2	1.24 (1.21-1.27)	<0.001
West	169,118	183,133	92.3	0.92 (0.90-0.94)	<0.001
US Territories	5,293	7,833	67.6	0.16 (0.15-0.17)	<0.001
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
South	66,018	71,829	91.9	ref.	ref.
Midwest	40,808	44,136	92.5	1.08 (1.03-1.13)	<0.001
Northeast	29,288	30,993	94.5	1.51 (1.43-1.60)	<0.001
West	29,005	31,251	92.8	1.14 (1.08-1.20)	<0.001
US Territories	1,802	2,256	79.9	0.35 (0.31-0.39)	<0.001
SCIP6: appropriate hair removal					
South	587,629	592,145	99.2	ref.	ref.
Midwest	385,646	388,859	99.2	0.92 (0.88-0.97)	<0.001

Northeast	297,284	299,532	99.2	1.02 (0.97-1.07)	0.532
West	279,180	282,116	99.0	0.73 (0.70-0.77)	<0.001
US Territories	7,844	8,961	87.5	0.05 (0.05-0.06)	<0.001
SCIPCARD2: Perioperative period beta blocker					
South	147,784	162,051	91.2	ref.	ref.
Midwest	106,546	117,054	91.0	0.98 (0.95-1.01)	0.113
Northeast	85,381	92,184	92.6	1.21 (1.18-1.25)	<0.001
West	59,482	67,099	88.6	0.75 (0.73-0.78)	<0.001
US Territories	993	1,545	64.3	0.17 (0.16-0.19)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
South	169,988	182,774	93.0	ref.	ref.
Midwest	99,327	106,377	93.4	1.06 (1.03-1.09)	<0.001
Northeast	96,401	100,803	95.6	1.65 (1.59-1.71)	<0.001
West	76,837	84,597	90.8	0.74 (0.72-0.77)	<0.001
US Territories	1,521	1,843	82.5	0.36 (0.31-0.40)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
South	164,922	181,622	90.8	ref.	ref.
Midwest	96,639	105,893	91.3	1.06 (1.03-1.09)	<0.001
Northeast	94,639	100,532	94.1	1.63 (1.58-1.68)	<0.001
West	74,698	83,964	89.0	0.82 (0.79-0.84)	<0.001
US Territories	1,443	1,685	85.6	0.60 (0.53-0.69)	<0.001

Disparities analysis for 26 performance measures using 2009 Clinical Data Warehouse

By Hospital Rural/Urban Location (less than 0.1 of cases were excluded due to missing data on hospital rural/urban location)

Measures and hospital rural/urban location	Num	Den	Percent	Unadjusted OR (95%CI)	p-value
AMI1: Aspirin at arrival					
Urban	291,143	295,802	98.4	ref.	ref.
Rural	38,206	39,467	96.8	0.48 (0.46-0.52)	<0.001
AMI2: Aspirin at discharge					
Urban	358,943	364,751	98.4	ref.	ref.
Rural	39,639	40,973	96.7	0.48 (0.45-0.51)	<0.001
AMI3: ACEI or ARB for LVSD					
Urban	65,715	68,816	95.5	ref.	ref.
Rural	7,570	8,064	93.9	0.72 (0.66-0.80)	<0.001
AMI4: Smoking cessation counseling					
Urban	122,296	123,021	99.4	ref.	ref.
Rural	13,772	13,964	98.6	0.43 (0.36-0.50)	<0.001
AMI5: Beta-blocker at discharge					
Urban	350,908	356,917	98.3	ref.	ref.
Rural	39,223	40,596	96.6	0.49 (0.46-0.52)	<0.001
AMI7a: Fibrinolytic within 30 minutes					
Urban	743	1,378	53.9	ref.	ref.
Rural	241	491	49.1	0.82 (0.67-1.01)	0.066
AMI8a: PCI within 90 minutes					
Urban	44,330	50,581	87.6	ref.	ref.
Rural	3,845	4,568	84.2	0.75 (0.69-0.82)	<0.001
HF1: Discharge instructions					
Urban	462,198	530,366	87.1	ref.	ref.
Rural	89,161	108,850	81.9	0.67 (0.66-0.68)	<0.001
HF2: Evaluation of LV function					
Urban	640,201	651,626	98.2	ref.	ref.
Rural	129,180	139,524	92.6	0.22 (0.22-0.23)	<0.001
HF3: ACEI or ARB for LVSD					
Urban	204,835	216,883	94.4	ref.	ref.
Rural	35,794	39,788	90.0	0.53 (0.51-0.55)	<0.001

HF4: Smoking cessation counseling					
Urban	109,946	111,420	98.7	ref.	ref.
Rural	22,294	23,495	94.9	0.25 (0.23-0.27)	<0.001
PN2: Pnemococal vaccination given or screened for					
Urban	343,445	372,029	92.3	ref.	ref.
Rural	115,907	128,899	89.9	0.74 (0.73-0.76)	<0.001
PN3a: Initial blood culture within 24 hours - ICU only					
Urban	82,609	86,195	95.8	ref.	ref.
Rural	21,017	23,045	91.2	0.45 (0.43-0.48)	<0.001
PN3b: Initial blood culture before first antibiotic dose - ED only					
Urban	370,713	390,752	94.9	ref.	ref.
Rural	106,285	112,910	94.1	0.87 (0.84-0.89)	<0.001
PN4: Smoking cessation counseling					
Urban	153,343	157,007	97.7	ref.	ref.
Rural	49,195	52,364	93.9	0.37 (0.35-0.39)	<0.001
PN5c: First antibiotic dose within 6 hours					
Urban	391,112	414,535	94.3	ref.	ref.
Rural	133,539	140,375	95.1	1.17 (1.14-1.20)	<0.001
PN6: Antibioti selection consistent with guidelines					
Urban	244,813	267,228	91.6	ref.	ref.
Rural	87,548	98,376	89.0	0.74 (0.72-0.76)	<0.001
PN7: Influenza vaccination given or screened for					
Urban	250,927	277,437	90.4	ref.	ref.
Rural	82,639	93,694	88.2	0.79 (0.77-0.81)	<0.001
SCIP1: Antibiotic within 1 hour before incision or 2 hours for vancomycin or quinolone					
Urban	873,006	907,766	96.2	ref.	ref.
Rural	170,887	179,749	95.1	0.77 (0.75-0.79)	<0.001
SCIP2: Prophylactic antibiotic consistent with guidelines					
Urban	895,997	917,696	97.6	ref.	ref.
Rural	175,035	180,505	97.0	0.77 (0.75-0.80)	<0.001
SCIP3: Prophylactic ABX discontinued within 24 h. of surgery end time or 48 h. for cardiac surgery					
Urban	805,137	863,438	93.2	ref.	ref.
Rural	159,351	172,373	92.4	0.89 (0.87-0.90)	<0.001
SCIP4: Controlled 6 AM postoperative serum glucose - cardiac surgery					
Urban	155,675	168,209	92.5	ref.	ref.
Rural	11,246	12,256	91.8	0.90 (0.84-0.96)	0.001

SCIP6: appropriate hair removal					
Urban	1,304,767	1,316,311	99.1	ref.	ref.
Rural	252,581	255,064	99.0	0.90 (0.86-0.94)	<0.001
SCIPCARD2: Perioperative period beta blocker					
Urban	341,816	374,870	91.2	ref.	ref.
Rural	58,327	65,020	89.7	0.84 (0.82-0.87)	<0.001
SCIPVTE1: Recommended VTE prophylaxis ordered during admission					
Urban	368,551	393,488	93.7	ref.	ref.
Rural	75,501	82,880	91.1	0.69 (0.67-0.71)	<0.001
SCIPVTE2: Received VTE prophylaxis within 24 hours prior to or after surgery					
Urban	358,864	391,436	91.7	ref.	ref.
Rural	73,455	82,235	89.3	0.76 (0.74-0.78)	<0.001

SURGICAL IMPROVEMENT PROJECT (SCIP) CART PAPER TOOL

Provider Name: _____

CMS Certification Number (CCN): _____

National Provider Identifier (NPI): _____

Health Care Organization Identifier (HCOID): (Joint Commission Required) _____

First Name: _____

Last Name: _____

Sex: ☐ Female ☐ Male ☐ Unknown

Birthdate: _____
Dates are MM-DD-YYYY. UTD is not an allowable entry.

Race: (Select one option)
- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Native Hawaiian or Pacific Islander
- ☐ UTD

Hispanic Ethnicity:
- ☐ No
- ☐ Yes

Hospital Patient ID: _____
Up to 40 letters, numbers, and/or characters.

Admission Date: _____
Dates are MM-DD-YYYY. UTD is not an allowable entry.

Discharge Date: _____
Dates are MM-DD-YYYY. UTD is not an allowable entry.

Abstractor ID: _____

Abstraction Date: _____
Dates are MM-DD-YYYY. UTD is not an allowable entry.

Vendor Tracking ID:
(Joint Commission Required) _____

1. **Would you like the questions to be enabled or disabled appropriately per the measure algorithms, or do you want all questions enabled? (SKIPPATTERN**) (Data Entry Question Only)
2. **What was the ICD-9-CM code selected as the principal diagnosis for this record? (PRINDX)** (Format three digits period two digits):

   _____

3. **Were there ICD-9-CM Other Diagnosis Codes?(OTHRDX#A)**
   (Format three digits period two digits):

   _____ _____ _____

   _____ _____ _____

   _____ _____ _____

   _____ _____ _____

4. **Was there an ICD-9-CM code selected as the principal procedure for this record?**

ICD-9-CM Principal Procedure Code (PRINPXA) (Format three digits period two digits):	**Date Performed (PRINPXDATE)** Dates are (MM-DD-YYYY or UTD)
_____	_____

5. **Were there ICD-9-CM other Procedure Codes?**

ICD-9-CM Other Procedure Code(s) (OTHERPX#A) (Format three digits period two digits):	**Date Performed (OTHERPX#DT)** (Dates are MM-DD-YYYY or UTD)

6. **What is the patient's source of payment for this Episode of Care? (PMTSRCE)**

☐ Source of payment is Medicare
☐ Source of payment is Non-Medicare

7. **What is the patient's Medicare/HIC number? (PTHIC)** (Required for data transmission of all cases that have a standard HIC#, All alpha characters must be upper case)

_____

8. **What is the postal code of the patient's residence? (POSTALCODE)**
(Five or nine digits, HOMELESS or NON-US)

_____

9. **Does this case represent part of a sample? (SAMPLE)**

☐ Yes
☐ No

10. What was the patient's discharge disposition? (DISCHGSTAT)

- ☐ 01 Discharged to home care or self care (routine discharge)
- ☐ 02 Discharged/transferred to a short term general hospital for inpatient care
- ☐ 03 Discharged/transferred to skilled nursing facility (SNF) with Medicare certification in anticipation of skilled care
- ☐ 04 Discharged/transferred to a facility that provides custodial or supportive care
- ☐ 05 Discharged/transferred to a designated cancer center or children's hospital
- ☐ 06 Discharged/transferred to home under care of organized home health service organization in anticipation of covered skilled care
- ☐ 07 Left against medical advice or discontinued care
- ☐ 20 Expired
- ☐ 21 Discharged/transferred to court/law enforcement
- ☐ 43 Discharged/transferred to a federal health care facility
- ☐ 50 Hospice - home
- ☐ 51 Hospice - medical facility (certified) providing hospice level of care
- ☐ 61 Discharged/transferred to hospital-based Medicare approved swing bed
- ☐ 62 Discharged/transferred to an inpatient rehabilitation facility (IRF) including rehabilitation distinct part units of a hospital
- ☐ 63 Discharged/transferred to a Medicare certified long term care hospital (LTCH)
- ☐ 64 Discharged/transferred to a nursing facility certified under Medicaid but not certified under Medicare
- ☐ 65 Discharged/transferred to a psychiatric distinct part unit of a hospital
- ☐ 66 Discharged/transferred to a Critical Access Hospital (CAH)
- ☐ 70 Discharged/transferred to another type of health care institution not defined elsewhere in this code list (See Code 05)

11. Was the procedure performed entirely by laparoscope or other fiber optic scope? (LAPAROSCOPE)

- ☐ Yes
- ☐ No
- ☐ UTD

12. During this hospital stay, was the patient enrolled in a clinical trial in which patients with the same condition as the measure set were being studied (CLNCLTRIAL)

- ☐ Yes
- ☐ No

13. Is there documentation that the patient was on continuous warfarin prior to admission? (PREADWARFARIN)

- ☐ Yes
- ☐ No

14. On what date did the anesthesia for the procedure start? (ANESTSTARTDT)
Dates are in MM-DD-YYYY format unless specified

_____

☐ UTD

15. Did the patient have an infection during this hospitalization prior to the principal procedure? (INFECPTA)

☐ Yes
☐ No

16. Is there documentation that the patient expired during the timeframe from surgical incision through discharge from the post anesthesia care/recovery area? (PERIOPDEATH)

☐ Yes
☐ No

17. Were there any other procedures requiring general or spinal/epidural anesthesia that occurred within three days (four days for CABG or Other Cardiac Surgery) prior to or after the principal procedure during this hospital stay? (OTHERSURG)

☐ Yes
☐ No

18. Did the patient receive antibiotics within 24 hours of arrival or the day prior to arrival and/or during this hospital stay? (ANTIBIRCVD)

☐ Antibiotic received only within 24 hours of arrival or the day prior to arrival and not during hospital stay.
☐ Antibiotic received within 24 hours of arrival or the day prior to arrival and during hospital stay (arrival through 24 hours for PN and arrival through 48 hours postop [72 hours post op for CABG or Other Cardiac Surgery] for SCIP-Inf).
☐ Antibiotic received only during hospital stay (arrival through 24 hours for PN and arrival through 48 hours postop [72 hours post op for CABG or Other Cardiac Surgery] for SCIP-Inf).
☐ Antibiotic not received (within 24 hours of arrival or arrival through 24 hours for PN and arrival through 48 hours postop [72 hours post op for CABG or Other Cardiac Surgery] for SCIP-Inf), or unable to determine from medical record documentation.

19. What were the antibiotics administered any time after hospital arrival and within the specified timeframe? (ABXDETAILS)

Antibiotic Name (NAMEABX) (trade or generic) see Appendix C, Table 2.1.	**Antibiotic Administration Date (DTABX)** Dates are MM-DD-YYYY or UTD	**Antibiotic Administration Time (TMABX)** Times are military format HH:MM or UTD	**Antibiotic Administration Route (ROUTEABX)** Format: 1=PO/NG/PEG tube (Oral) 2=IV (Intravenous) 3=IM (Intramuscular) 10=UTD

20. **Were the only antibiotic combinations administered prior to hospital arrival or more than 24 hours prior to incision either oral Neomycin Sulfate + Erythromycin Base or oral Neomycin Sulfate + Metronidazole? (ORALANTIBIOTIC)**

☐ Yes
☐ No

21. **At what time was the anesthesia initiated for the principal procedure? (ANESTSTARTTM)HH:MM military format**

_____

☐ UTD

22. **At what time was the initial incision made for the principal procedure? (SURGINCISTM) HH:MM military format**

_____

☐ UTD

23. **On what date was the incision for the principal procedure made? (SURGINCISDT)** Dates are in MM-DD-YYYY format unless specified

_____

☐ UTD

24. **On what date did the anesthesia for the for the principal procedure end? (ANESTHENDDATE)** Dates are in MM-DD-YYYY format unless specified

_____

☐ UTD

25. **At what time did the anesthesia for the principal procedure end? (ANESTHENDTIME) HH:MM military format**

_____

☐ UTD

26. **What reason was documented postoperatively by the physician/APN/PA for extending the duration of the antibiotic administration past 24 hours (48 hours for CABG or Other Cardiac Surgery) after *Anesthesia End Time*?(RSNEXTABX)** ***(Select all that apply)***

☐ There is physician/advanced practice nurse/physician assistant (physician/APN/PA) documentation within 2 days (3 days for CABG or Other Cardiac Surgery) following the principal procedure with the day of surgery being day zero that erythromycin was administered postoperatively for the purpose of increasing gastric motility.

- ☐ There is physician/APN/PA documentation within 2 days (3 days for CABG or Other Cardiac Surgery) following the principal procedure with the day of surgery being day zero that an antibiotic was administered postoperatively for the treatment of hepatic encephalopathy.
- ☐ There is physician/APN/PA documentation within 2 days (3 days for CABG or Other Cardiac Surgery) following the principal procedure with the day of surgery being day zero that an antibiotic was administered postoperatively as prophylaxis of Pneumocystis pneumonia (PCP) to a patient with a diagnosis of AIDS.
- ☐ There is physician/APN/PA documentation within 2 days (3 days for CABG or Other Cardiac Surgery) following the principal procedure with the day of surgery being day zero that the patient had an infection.
- ☐ There is physician/APN/PA documentation within 2 days following the principal procedure with the day of surgery being day zero that the patient has a current malignancy of the lower extremity involving the same extremity as the principal procedure that was an original arthroplasty or a joint revision surgery.
- ☐ There is documentation within 2 days following the principal procedure with the day of surgery being day zero that the principal procedure was a joint revision surgery.
- ☐ No documented reason/Unable to Determine.

27. **What method of surgical site hair removal was performed prior to the principal procedure? (PREOPHRREM)** ***(Select all that apply)***

- ☐ No documented hair removal or no hair removal performed
- ☐ Razor
- ☐ Clippers/Scissors
- ☐ Depilatory
- ☐ Other
- ☐ Patient performed their own hair removal
- ☐ Unable to determine method
- ☐ Hair removal with a razor from the scrotal area OR from the scalp after a current traumatic head injury

28. Was there documentation that the procedure was performed using general or neuraxial anesthesia? (ANESTTYPE)

- ☐ There is documentation that the procedure was performed using general anesthesia.
- ☐ There is documentation that the procedure was performed using neuraxial anesthesia.
- ☐ There is documentation that the procedure was performed using **both** neuraxial and general anesthesia.
- ☐ There is no documentation that the procedure was performed using either general or neuraxial anesthesia or unable to determine from the medical record documentation.

29. Was there documentation that intentional hypothermia was utilized during the perioperative period? (INTENTHYPO)

☐ Yes
☐ No

30. Was there documentation of active warming used intraoperatively OR at least one body temperature equal to or greater than 96.8 degrees F/36 degrees C within the 30 minutes immediately prior to or the 15 minutes immediately after *Anesthesia End Time* in the medical record?(TEMPERATURE) *(Select all that apply)*

☐ 1 Active warming was performed intraoperatively.
☐ 2 There is documentation of at least one body temperature greater than or equal to 96.8 degrees F/36 degrees C within the 30 minutes immediately prior to or the 15 minutes immediately after Anesthesia End Time.
☐ 3 There is no documentation of Allowable Values 1 AND 2.
☐ 4 Unable to determine from the medical record documentation.

31. Is there documentation that the patient had a urinary catheter paced in the perioperative timeframe and that it was still in place at the time of discharge from the recovery/post-anesthesia care area? (URINECATH)

☐ There is documentation that an indwelling urethral catheter was placed perioperatively and was still in place at the time of discharge from the recovery/post-anesthesia care area.
☐ There is no documentation that an indwelling urethral catheter was placed perioperatively and was still in place at the time of discharge from the recovery/post-anesthesia care area.
☐ There is documentation that the patient had an indwelling urethral or suprapubic catheter or was being intermittently catheterized prior to the perioperative timeframe.
☐ There is documentation that the patient had a suprapubic catheter placed perioperatively and was still in place at the time of discharge from the recovery/post-anesthesia care area or the patient was being intermittently catheterized during the perioperative period.
☐ Unable to determine whether the patient had a catheter in place from medical record documentation.

32. Is there documentation that the urinary catheter was removed on POD 0 through POD 2 with the *Anesthesia End Date* being POD 0? (CATHREMOVE)

☐ There is documentation that the urinary catheter was removed on POD 0 through POD 2.
☐ There is no documentation that the urinary catheter was removed on POD 0 through POD 2.
☐ Unable to determine (UTD) from medical record documentation whether the urinary catheter was removed on POD 0 through POD 2.

33. Was there documentation of reason(s) for not removing the urinary catheter postoperatively? (REASONCNTCATH)

- ☐ There is documentation that the patient was in the intensive care unit (ICU) AND receiving diuretics.
- ☐ There is physician/advanced practice nurse/physician assistant (physician/APN/PA) documentation of reasons for not removing the urinary catheter postoperatively.
- ☐ There is no physician/APN/PA documentation of reasons for not removing the urinary catheter postoperatively or unable to determine from medical record documentation.

34. Is there documentation that the patient was on a daily beta-blocker therapy prior to arrival? (BBLKRCURRENT)

- ☐ Yes
- ☐ No

35. Was the patient taking the beta-blocker prior to arrival pregnant? (BBLKRPREG)

- ☐ Yes
- ☐ No
- ☐ UTD

36. Is there documentation that a beta-blocker was received during the perioperative period? (BBLKRPERIOP)

- ☐ Yes
- ☐ No

37. Was there documentation of reasons for not administering a beta-blocker during the perioperative period? (CTRBBLKPERIOP)

- ☐ Yes
- ☐ No

38. Is there documentation by a physician/advanced practice nurse/physician assistant (physician/APN/PA) or pharmacist in the medical record of a reason for not administering pharmacological and/or mechanical VTE prophylaxis? (CONTRAVTEPRO)

- ☐ There is physician/APN/PA or pharmacist documentation of a reason for not administering mechanical VTE prophylaxis.
- ☐ There is physician/APN/PA or pharmacist documentation of a reason for not administering pharmacological VTE prophylaxis.
- ☐ There is physician/APN/PA or pharmacist documentation of a reason for not administering both mechanical and pharmacological VTE prophylaxis.
- ☐ There is no physician/APN/PA or pharmacist documentation of a reason for not administering either mechanical or pharmacological VTE prophylaxis or unable to determine from medical record documentation.

39. **What type of VTE prophylaxis was documented in the medical record? (Collect any VTE prophylaxis that was ordered at anytime from hospital arrival to 24 hours after Anesthesia End time). (VTEPROA)**

VTE Prophylaxis Ordered (VTEPROPH) *(Select all that apply)*	**Was VTE Prophylaxis Timely? (VTETIMELY)**
☐ Low dose unfractionated heparin (LDUH)	☐ Yes ☐ No
☐ Low molecular weight heparin (LMWH)	☐ Yes ☐ No
☐ Intermittent pneumatic compression devices (IPC)	☐ Yes ☐ No
☐ Graduated compression stocking (GCS)	☐ Yes ☐ No
☐ Factor Xa Inhibitor	☐ Yes ☐ No
☐ Warfarin	☐ Yes ☐ No
☐ Venous foot pumps (VFP)	☐ Yes ☐ No
☐ Oral Factor Xa Inhibitor	☐ Yes ☐ No
☐ None of the above or not documented or unable to determine from medical record documentation	☐ Yes ☐ No

40. Did the patient have any allergies, sensitivities or intolerance to beta-lactam/penicillin antibiotic or cephalosporin medications? (ANTIALLERGY)

☐ Yes
☐ No

41. **What reason was documented for using vancomycin? (VANCO)**

(Select all that apply)

- ☐ Documentation of beta-lactam (penicillin or cephalosporin) allergy.
- ☐ Physician/APN/PA or pharmacist documentation of MRSA colonization or infection.
- ☐ Documentation of patient being high-risk due to acute inpatient hospitalization within the last year.
- ☐ Documentation of patient being high-risk due to nursing home or extended care facility setting within the last year, prior to admission.
- ☐ Physician/APN/PA or pharmacist documentation of increased MRSA rate, either facility-wide or operation-specific.
- ☐ Physician/APN/PA or pharmacist documentation of chronic wound care or dialysis.
- ☐ Documentation of continuous inpatient stay more than 24 hours prior to the principal procedure.
- ☐ Other Physician/APN/PA or pharmacist documented reason.
- ☐ No documented reason/Unable to Determine.
- ☐ Physician/APN/PA or pharmacist documentation of patient undergoing valve surgery.
- ☐ Documentation of patient being transferred from another inpatient hospitalization after a 3-day stay.

42. What was the patient's blood glucose level on postoperative day one (POD 1) closest to 6:00 A.M.? (GLUPOD1)

_____ (1-3000 mg per dL)

☐ UTD

43. What was the patient's blood glucose level on postoperative day two (POD 2) closest to 6:00 A.M.? (GLUPOD2)

_____ (1-3000 mg per dL)

☐ UTD

44. What is the first physician identifier? (PHYSICIAN_1)

_____

45. What is the second physician identifier? (PHYSICIAN_2)

_____

This material was prepared by the IFMC (Hospital Inpatient Quality Reporting Program Contractor) under contract with the Centers for Medicare & Medicaid Service (CMS), an agency of the US Department of Health and Human Services. It is based on *The Specifications Manual for National Hospital Inpatient Quality Measures*, which is a collaborative effort of CMS, The Joint Commission, SDPS, and the Hospital Inpatient Quality Reporting Program Contractor. 9SoW-IA-HIQRP-09/10-106

THE NATIONAL QUALITY FORUM

COMPOSITE MEASURE SUBMISSION FORM
Version 4.1 January 2010

This form will be used by stewards to submit **composite** measures and by reviewers to evaluate the measures.

Measure Stewards: Check with NQF staff before using this form. Complete all non-shaded areas of the form. All requested information should be entered directly into this form. The information requested is directly related to NQF's composite measure evaluation criteria and will be used by reviewers to determine if the evaluation criteria have been met. The specific relevant subcriteria language is provided in a Word comment within the form and will appear if your cursor is over the highlighted area (or in balloons).

The measure steward has the opportunity to identify and present the information that demonstrates the measure meets the criteria. Additional materials will only be considered supplemental. Do not rely solely on materials provided at URLs or in attached documents to provide measure specifications or to demonstrate meeting the criteria. If supplemental materials are provided, be sure to indicate specific page numbers/ web page locations for the relevant information (web page links preferred).

For questions about completing this form, contact the project director at 202-783-1300. Please email this form to the appropriate contact listed in the corresponding call for measures.

TAP/Workgroup (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

Steering Committee: Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) **NQF Review #:** 963 **NQF Project:** Surgery Endorsement Maintenance 2010
De.1 Title of Measure: Composite Measure of Hospital Quality for Indicators Related to the Surgical Care Improvement Project (SCIP)
De.2 Brief description of measure (*including type of score, measure focus, target population, time, e.g., Percentage of adult patients aged 18-75 years receiving one or more HbA1c tests per year*): A composite measure of in-hospital process-of-care indicators related to the Surgical Care Improvement Project (SCIP).
De.3 Type of Measure: ☐ Composite with component measures combined at patient-level (e.g., all-or-none) ☒ Composite with component measures combined at aggregate-level
Select the most relevant priority area(s), quality domain(s), and consumer need(s). **De.4 National Priority Partners Priority Area** ☐ patient and family engagement ☐ population health ☐ safety ☒ care coordination ☐ palliative and end of life care ☐ overuse

De.5 IOM Quality Domain ☒ effectiveness ☐ efficiency ☐ equity ☐ patient-centered ☐ safety ☒ timeliness

De.6 Consumer Care Need ☒ Getting Better ☐ Living With Illness ☐ Staying Healthy

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	**NQF Staff**
A. The measure is in the public domain or an intellectual property agreement (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.* **A.1 Do you attest that the measure steward holds intellectual property rights to the measure and the right to use any aspects of the measure owned by another entity (e.g., component measures, risk model, code set)?** ☒ Yes **A.2 Measure Steward Agreement** ☐ Signed and Submitted **OR** ☒ Government entity-public domain (If measure steward agreement not signed for non-government entities, do not submit) **A.3 Please check if either of the following apply:** ☐ Proprietary Measure ☐ Proprietary Complex Measure w/fees	**A** Y☐ N☐
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. **B.1** ☒ Yes (If no, do not submit)	**B** Y☐ N☐
C. The intended use of the measure includes both public reporting and quality improvement. **C.1 Purpose:** ☒ Public reporting ☒ Internal quality improvement **C.2** ☒ Accountability ☐ Accreditation ☐ Payment incentive ☐ Other, describe: (If not intended for both public reporting and quality improvement, do not submit)	**C** Y☐ N☐
D. The requested measure submission information is complete. Composite measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. **D.1 Testing:** ☒ Fully developed and tested (If composite measure not tested, do not submit) **D.2 Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?** ☒ Yes (If no, do not submit) *If there are similar or related measures, be sure to address items 3b and 3c with specific information.* ►**Is all requested information entered into this form?** ☒ Yes (If no, do not submit)	**D** Y☐ N☐
De.7 If component measures of the composite **are aggregate-level measures, all** must be either NQF-endorsed or submitted for consideration for NQF endorsement (*check one*) ☒ All component measures are NQF-endorsed measures ☐ Some or all component measures are not NQF-endorsed and have been submitted using the online measure submission tool (If not, do not submit)	Y☐ N☐
(for NQF staff use) **Have all conditions for consideration been met?** Staff Notes to Steward (if submission returned):	**Met** Y☐ N☐
Staff Notes to Reviewers (issues or questions regarding any criteria):	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	

Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. ***Measures must be judged to be important to measure and report*** *in order to be evaluated against the remaining criteria.* (composite measure evaluation criteria)	**Eval**
(for NQF staff use) **Specific NPP goal**:	
1d. Purpose/objective of the Composite **1d.1 Describe the purpose/objective of the composite measure:** This measure was designed specifically for use in the Centers for Medicare & Medicaid Services' (CMS) public reporting efforts for measures used in CMS' Hospital Inpatient Quality Reporting Program (formerly RHQDAPU). This program is required to publicly report the adopted measures in particular focus areas related to the quality of hospital inpatient care. The number of measures in the program has expanded considerably, and in the latest inpatient prospective payment system (IPPS) rule, CMS further expanded the measure set to include 60 measures over the next few years. The volume of measures presents a challenge for the public reporting requirement of the program to present this information in a manner that is understandable and useful to consumers. The primary objective of this measure is to summarize the measures for the Surgical Care Improvement Project (SCIP) focus area into a single composite that is useful, understandable, and acceptable to a wide range of stakeholders. The SCIP composite measure is a formative measure that summarizes eight clinical process-of-care indicators associated with SCIP and reported for CMS' Hospital Inpatient Quality Reporting Program. Measures were adopted for this program because, based on a consensus process, they were deemed to be indicators of well-coordinated, high-quality care in the hospital inpatient setting for the clinical condition of interest. In addition, CMS sought an approach to composite methodology that was flexible and adaptable to changes in the sets of measures and clinical conditions included now and in the future of the Hospital Inpatient Quality Reporting program. A topic-specific composite is useful for three reasons. First, in any composite, information from a number of component measures is summarized into a single measure for more effective communication. Second, in a condition-specific composite, the component measures are aggregated at a level that is relevant to both consumers and providers. A condition-specific composite strikes a useful balance between creating one global hospital measure, which might not be relevant to individual consumers or providers with specific needs or practice spheres, and offering only the component measures, which some stakeholders could find overwhelming or contradictory and thus unhelpful. Third, condition-specific composite measures respond simply and directly to a key patient-centered question: "Which hospital should I go to, given my condition?" Moreover, the use of condition-specific composite measures permits disease-specific care teams and their management within hospitals to answer the following question: "Overall, how well is our system serving patients with this condition?" As background, the Hospital Inpatient Quality Reporting Program was initially developed as a result of the Medicare Prescription Drug, Improvement and Modernization Act (MMA) of 2003. Section 5001(a) of Pub. 109-171 of the Deficit Reduction Act (DRA) of 2005 set out new requirements for the program, which built on the ongoing voluntary Hospital Quality Initiative. The Hospital Inpatient Quality Reporting Program is the main effort of CMS to communicate hospital-level quality to patients and providers. **1d.2 Describe the quality construct used in developing the composite:** The composite measure of quality of hospital care for SCIP aims to be a comprehensive indicator of hospital performance that will be of special value to consumers as a summary means of evaluating alternative hospitals. The quality construct is thus formative in nature. At present, CMS publishes nine individual process-of-care indicators meant to capture the quality of hospital care provided to patients who undergo surgery. Included in our composite are eight process-of-care indicators related to SCIP as we exclude SCIP INF, Cardiac Surgery Patients With Controlled 6 A.M. Postoperative Blood Glucose, to try to calculate a composite score that encompasses a large number of surgical patients.	**1d** **C**☐ **P**☐ **M**☐ **N**☐

CMS developed the composite measure to achieve the following goals for reporting hospital quality measures composite methodology:

- Summarize measures on Hospital Compare in a single, useful, condition-specific composite
- Produce composite values that show differences in hospital performance that are clinically and statistically meaningful and reflect true underlying differences in quality
- Enable the calculation of results for most hospitals
- Employ a method that accommodates changes in the set of measures on Hospital Compare and can be used for multiple conditions
- Employ a method that is relatively simple, so hospitals can duplicate results

These goals can be achieved by a method that is consistent with that of other widely used composites; in this case the method used for the Agency for Healthcare Research and Quality (AHRQ) composites. The National Quality Forum (NQF) has endorsed those composites and CMS, states, and other organizations use them widely.

The current Hospital Inpatient Quality Reporting Program construct domains focus on diseases important to the Medicare population: Acute Myocardial Infarction (AMI), Heart Failure (HF), and Pneumonia (PN), and on quality indicators related to the Surgical Care Improvement Project (SCIP). The first three have separate sub-composites in processes- and outcomes-of-care. This system of domains and sub-composites allows addition or removal of measures without changes in methodology or weighting, as well as the publication or analysis of separate process and outcome composites within a condition if desired.

In the development of this composite, certain methodological decisions were made to satisfy the policy goals outlined above. First, we entered individual measures as values, rather than ranks, to reduce the likelihood that very small differences in absolute performance lead to large differences in ranking composite scores. Second, we adjusted individual measures for reliability, a process that leads to a more accurate measure of true underlying performance and avoids extreme values for small hospitals due to random variation. Lastly, we used denominator weighting so that the composite places more weight on measures that are reported for relatively more patients nationally. In Table 1d.2.1, we present the mapping between CMS' policy goals and methodological decisions in tabular form.

Table 1d.2.1. CMS Policy Goals for Composite Measures and Associated Methodological Decisions

Policy Goals	Methodological Decisions
Summarize measures on Hospital Compare in a single, useful, condition-specific composite	• Include the same set of process-of-care measures as Hospital Compare
Produce differences in composite values that are clinically and statistically meaningful and reflect true differences in underlying quality	• Enter component measures as values, not ranks, so that slight differences in measured performance do not potentially lead to large differences in the composite value for topped-off measures • Adjust component measures for reliability so that random variation does not skew the measure estimates for small hospitals to extreme values.
Results available for a large number of hospitals	• Process measures are available when the number of eligible discharges is five or more
Focus more on measures relevant to more patients	• Construct composites using weights based on national denominators
Method is scientifically acceptable and acceptable to consumers and other stakeholders	• Adopt an approach that is similar to that used for AHRQ quality indicators (QIs) *Note: AHRQ QIs are NQF-endorsed and widely reported*
Method accommodates changes in the set of measures on Hospital Compare	• Method is based on general principles, not on the specific statistical performance of a group of measures • Process indicators are statistically standardized before they are added together
Method can be used for multiple conditions	
Method is relatively simple to enable hospitals to duplicate results	• Reliability weights are a function of a hospital's number of cases and national parameters

1e. Components and conceptual construct for quality

1e.1 Describe how the component measures/items are consistent with and representative of the quality construct:

As indicated previously, this composite measure is primarily a formative summary of the measures on Hospital Compare. Thus, the composite includes all measures associated with this condition that are reported on Hospital Compare.

That said, measures were adopted for the Hospital Inpatient Quality Reporting Program because, based on a consensus process, they were deemed to be indicators of well-coordinated, high-quality care in the hospital inpatient setting for the clinical condition of interest. The SCIP composite is made up of process-of-care indicators. Currently, no outcome-of-care indicators are reported on Hospital Compare for SCIP. While it is not possible to directly assess an abstract concept such as quality of care, process-of-care indicators that evaluate whether certain best practices were executed provide critical insight into a hospital's care delivery system. For example, for the SCIP composite measure, the component process-of-care indicators evaluate whether a patient received:

- Surgery patients on beta-blocker therapy prior to arrival who received a beta blocker during the perioperative period
- Surgery patients were given an antibiotic at the right time (within one hour to before surgery) to help prevent infection

1e
C ☐
P ☐
M ☐
N ☐

- Surgery patients were given the right kind of antibiotic to help prevent infection
- Surgery patients were given preventive antibiotics that were stopped at the right time (within 24 hours after surgery)
- Surgery patients with urinary catheter removed on postoperative day 1 or postoperative day 2 with day of surgery being day zero.
- Surgery patients needing hair removed from the surgical area before surgery, who had hair removed using a safer method (electric clippers or hair removal cream – not a razor)
- Surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries
- Surgery patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery

These NQF-endorsed process-of-care indicators represent established best practices for surgical care[1-6], and CMS adopted them for the Hospital Inpatient Quality Reporting Program initiative. As standards in clinical practice evolve, additions or changes to these component measures are likely to follow, as well as developing expansions into other conditions and disease states.

The combination of the SCIP component measures, ultimately serves to deliver a single, robust measure of hospital quality for consumer use.

Citations

1. Bratzler DW, Houck PM, for the Surgical Infection Prevention Guidelines Writers Group. Antimicrobial prophylaxis for surgery: An advisory statement from the National Surgical Infection Prevention Project. *CID*. 2004:38(15 July):1706-1715.
2. Mangram AJ, Horan TC, Pearson ML, et al. Guidelines for prevention of surgical site infection, 1999. *Infect Control Hosp Epidemiol*. 1999;20:247-280.
3. Gordon SM, Serkey JM, Barr C, et al. The relationship between glycosylated hemoglobin (HgA1c) levels and postoperative infections in patients undergoing primary coronary artery bypass surgery (CABG.) *Infect Control Hosp Epidemiol*. 1997;18(No.5, Part 2):29(58.) PMID: 00000.
4. Kjonniksen I, Andersen BM, Sondenaa VG, et al. Preoperative hair removal-a systematic literature review. *AORN J*. 2002 May;75 (5):928-938,940. PMID:12063942.
5. Stratton MA, Anderson FA, Bussey HI, Caprini J. Prevention of venous thromboembolism: adherence to the 1995 American College of Chest Physicians Consensus Guidelines for Surgical Patients. *Arch Intern Med*. 2000;160:334-3. PMID: 10668835.
6. Chapter 31 of Making Healthcare Safer: A Critical Analysis of Patient Safety Practices. Prepared for Agency for Healthcare Research and Quality, Contract No. 290-97-0013. Prevention of Venous Thromboembolism. PMID: 00000.

If the component measures are combined at the patient level, complete 1a, 1b, and 1c.

If the component measures are combined at the aggregate level, skip to criterion 2, *Scientific Acceptability of Measure Properties* (individual measures are either NQF-endorsed or submitted individually).

1a. High Impact

Please note that sections 1a, 1b, and 1c were not completed because we have data at the aggregate level (i.e., hospital-level) and not at the patient-level.

1a.1 Demonstrated high impact aspect of healthcare (*Select the most relevant*)

☐ affects large numbers ☐ frequently performed procedure ☐ leading cause of morbidity/mortality
☐ high resource use ☐ severity of illness ☐ patient/societal consequences of poor quality
☐ other, describe: **1a.2**

1a.3 Summary of Evidence of High Impact:

1a.4 Citations for Evidence of High Impact:

1a
H☐
M☐
L☐
N☐

1b. Opportunity for Improvement

1b.1 Briefly explain benefits (improvements in quality) envisioned by use of this measure:

1b.2 Summary of data demonstrating performance gap (*variation or overall poor performance across*

1b
H☐
M☐
L☐

providers)**:** **1b.3 Citations for data on performance gap:** **1b.4 Summary of Data on disparities by population group:** **1b.5 Citations for data on Disparities:**	**N**☐
1c. Evidence-based **1c.1 Relationship to Outcomes** (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population.)* **1c.2 Type of Evidence** *(Check all that apply)* ☐ Cohort study ☐ Evidence-based guideline ☐ Expert opinion ☐ Meta-analysis ☐ Observational study ☐ Randomized controlled trial ☐ Systematic synthesis of research ☐ Other (*Please describe*): **1c.3** **1c.4 Summary of Evidence** *as described above for type of measure; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:** **1c.5 Rating of strength/quality of evidence** (*also provide narrative description of the rating and by whom*) **1c.6 Method for rating evidence:** **1c.7 Summary of Controversy/Contradictory Evidence:** **1c.8 Citations for Evidence** (*other than guidelines*) **1c.9 Quote the Specific guideline recommendation** (*including guideline number and/or page number*) **1c.10 Clinical Practice Guideline Citation:** **1c.11 National Guideline Clearinghouse or other URL:** **1c.12 Rating of strength of recommendation** (*also provide narrative description of the rating and by whom*) **1c.13 Method for rating strength of recommendation** (*If different from USPSTF system, also describe rating and how it relates to USPSTF)***:** **1c.14 Rationale for using this guideline over others:**	**1c** **H**☐ **M**☐ **L**☐ **N**☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y**☐ **N**☐
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (composite measure evaluation criteria)	**Eval**
2a. COMPOSITE MEASURE SPECIFICATIONS	
In the future, NQF will require measure stewards to provide a URL link to a web page where current detailed specifications can be obtained? **S.1** Do you have a web page where current detailed measure specifications can be obtained? Upon endorsement, the proposed measure specifications will be posted on the *Hospital Compare* website: http://www.hospitalcompare.hhs.gov/ **S.2** If yes, provide web page URL: http://www.hospitalcompare.hhs.gov/	**2a-specs** **C**☐ **P**☐ **M**☐ **N**☐

2a. Precisely Specified

2a.0.1 Components of the Composite (*List the components, i.e., domains/sub-composites, individual measures. If component measures are NQF-endorsed, include NQF measure number*; if not NQF-endorsed, provide date of submission to NQF)

NQF #284	Percent of surgery patients on beta-blocker therapy prior to arrival who received a beta blocker during the peri-operative period	Endorsed Oct 1, 2007
NQF #0527	Percent of surgery patients given an antibiotic at the right time (within one hour to before surgery) to help prevent infection	Endorsed Aug 10, 2009
NQF #0528	Percent of surgery patients given the right kind of antibiotic to help prevent infection	Endorsed Aug 10, 2009
NQF #0529	Percent of surgery patients given preventive antibiotics that were stopped at the right time (within 24 hours after surgery)	Endorsed Aug 10, 2009
NQF #0301	Percent of surgery patients needing hair removed from the surgical area before surgery, who had hair removed using a safer method (electric clippers or hair removal cream – not a razor)	Endorsed Nov 15, 2007
NQF #0217	Percent of surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries	Endorsed Aug 10, 2009
NQF #0218	Percent of surgery patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery	Endorsed Aug 10, 2009
NQF #0453	Percent of surgical patients with urinary catheter removed on postoperative day 1 or postoperative day 2 with day of surgery being day zero.	Endorsed Jul 31, 2008

If the composite measure cannot be specified with a numerator and denominator, please consult with NQF staff.

If the component measures are combined at the aggregate level, do not include the individual measure specifications below.

2a.1 Composite Numerator Statement:

The numerator is equal to the weighted sum of eight terms. Each term is equal to the ratio of the hospital's raw performance rate to the national performance rate for the indicator. The weight is equal to the total number of observations, that is, the number of patients 'at risk' for the indicator.

2a.2 Numerator Time Window: April 2009-March 2010

2a.3 Numerator Details:

Successes in the following surgical care improvement project process-of-care indicators:

NQF #284	Percent of surgery patients on beta-blocker therapy prior to arrival who received a beta blocker during the peri-operative period
NQF #0527	Percent of surgery patients given an antibiotic at the right time (within one hour to before surgery) to help prevent infection
NQF #0528	Percent of surgery patients given the right kind of antibiotic to help prevent infection
NQF #0529	Percent of surgery patients given preventive antibiotics that were stopped at the right time (within 24 hours after surgery)
NQF #0301	Percent of surgery patients needing hair removed from the surgical area before surgery, who had hair removed using a safer method (electric clippers or hair removal cream – not a razor)

NQF #0217	Percent of surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries
NQF #0218	Percent of surgery patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery
NQF #0453	Percent of surgical patients with urinary catheter removed on postoperative day 1 or postoperative day 2 with day of surgery being day zero.

2a.4 Composite Denominator Statement:

The denominator is equal to the total number of observations for all process indicators related to SCIP. It is thus equal to the number of patients 'at risk for the eight process indicators.

2a.5 Target Population Gender ☒ Female ☒ Male

2a.6 Target Population Age range Aged 65 and over.

2a.7 Denominator Time Window: April 2009-March 2010

2a.8 Denominator Details:

Counts of process-of-care opportunities are based on hospital SCIP quality reports.

2a.9 Composite Denominator Exclusions:

The following two criteria were applied as exclusion restrictions:

1. Hospitals with less than five eligible patient cases for the process-of-care indicators.
2. Hospitals that were missing rates for one or more process-of-care indicators.

2a.10 Denominator Exclusion Details:
See above (2a.9)

2a.11 Stratification Details/Variables (*All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
None

2a.18 Type of Score: Weighted score/comosite/scale **2a.19** If "Other", please describe: N/A

2a.20 Interpretation of Score (*Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score*)
Better quality = Higher score

2a.42 Method of Scoring/Aggregation: other **2a.43 If "other" scoring method, describe:**

The composite measure was computed as the ratio of actual to expected values of the eight process-of-care indicators related to SCIP. All indicators are publically reported by the CMS on *Hospital Compare* and are NQF endorsed. The method of scoring is described in detail below. Additional documentation is available in Section 2 of the attached appendix (Appendix A).

In constructing the composite, reliability weights are applied to each individual process-of-care indicator. Each indicator is thus computed as a weighted average of the hospital's own value for the indicator and the national mean for that indicator. Each indicator was then standardized by dividing by the national mean of the indicator.

In order to remain consistent with the approach used for AHRQ measures, CMS used denominator weighting in constructing the composite. Denominator weighting places greater weight on indicators that apply to higher numbers of patients nationally, so that if one indicator is relevant to twice as many patients as another, the weight of that indicator in the composite is twice as large as the weight of the other. Many composite measures that NQF has approved use this patient-opportunity basis; it has the advantage of focusing the outcome of the measurement process on the places where opportunities to provide appropriate evidence-based process care are greatest.

Since the process-of-care indicators are standardized by the national rate of each of the indicators, hospitals with:

- A composite score of >1 have a performance score that is greater than the national rate
- A composite score of <1 have a performance score that is less than the national rate.

However, it should be noted that the differences in performance from the national rate should be interpreted with caution since it may not be statistically significant. Therefore, our method of discrimination of performance is described in greater detail in Section 2a.22.

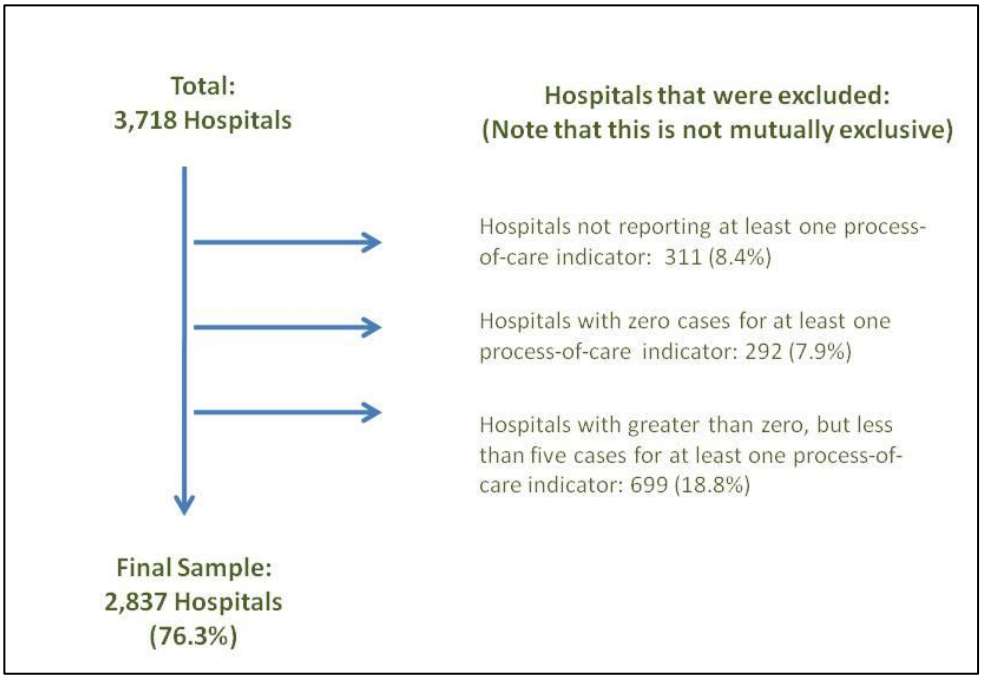
2a.44 **Missing Component Scores** (*Indicate how missing component scores are handled*):

Composite scores for a hospital were calculated if:

1. The hospitals reported rates for all eight process-of-care indicators
2. Each process-of-care indicator had at least five cases.

Composite scores were not estimated for hospitals that did not satisfy the above two criteria. The data that we use was released on *Hospital Compare* in Dec. 2010 and the collection period of the quality indicators was between April 2009 and March 2010. Figure 2a.44.1 shows how the final sample of hospitals was derived.

Figure 2a.44.1: Sample of Hospitals



2a.45 **Weighting:** ☐ **Equal** ☒ **Differential** 2a.46 **If differential weighting, describe:**

Consistent with the approach used for the AHRQ measures, CMS used denominator weighting in constructing the composite. Denominator weighting places relatively more weight on measures that apply to relatively more patients nationally, so that if one indicator is relevant to twice as many patients as another, the weight of that indicator in the composite is twice as large as the weight of the other. Many composite measures that NQF has approved use this patient measure opportunity basis; it has the advantage of focusing the outcome of the measurement process on the places where opportunities to provide appropriate evidence-based process care are greatest. Technical documentation on the scoring approach is provided in Section 2.1 of Appendix A, attached)

2a.21 **Calculation Algorithm** (*Describe the calculation of the measure as a flowchart or series of steps*):

Table 2a.21.1: Steps to Construct the Composite Score

Key Steps	Description	Example
Step 1a Exclude hospitals that do not meet the minimum case size requirement Step 1b Exclude hospitals missing one or more indicators	Exclude hospitals if there are less than five cases for any of the eight process-of-care indicators. Exclude hospitals missing one or more process-of-care indicators.	N/A
Step 2 Weight the indicators by a reliability weight	The value of each process-of-care indicator is set to a weighted average of the hospital's own rate and the national rate.	Suppose the performance rate for the "Percent of surgery patients given preventive antibiotics that were stopped at the right time (within 24 hours after surgery)" at Heartcare Regional Hospital is 80% and the national rate for this indicator is 77%. Also, suppose that the hospital's weight is 0.8. Then the hospital's reliability-weight adjusted rates is: 0.8(80%)+(1-0.8)(77%)=79.4%
Step 3 Standardize the indicators by dividing by the national mean of each indicator	The value of each (reliability weight adjusted) process-of-care indicator is divided by the national rate.	If Heartcare Regional Hospital's reliability-weight adjusted rates is 79.4% and the national reliability-rate adjusted rate is 81%, then the standardized indicator is: ___
Step 4 Construct the composite score by combining the indicators using a denominator weighted average	Take a denominator-weighted average of the standardized process-of-care indicators.	*Suppose the standardized rates and the national number of cases for the eight process-of-care for Heartcare Hospital respectively are*:* CARD 2: 1.05 (N=2000) INF1: 1.10 (N=4000) INF2: 0.98 (N=5000) INF3: 1.32 (N=3000) INF6: 0.95 (N=4000) INF9: 1.25 (N=3000) VTE1: 1.10 (N=500) VTE2: 0.80 (N=4000) Then the composite is: _____ _____ _____ _____ _____ _____ _____ _____

Notes:
* **CARD2:** Surgery patients who were taking heart drugs called beta blockers before coming to the hospital, who were kept on the beta blockers during the period just before and after their surgery; **INF1:** Surgery patients who were given an antibiotic at the right time (within one hour before surgery) to help prevent infection; **INF2:** Surgery patients who were given the right kind of antibiotic to help prevent infection; **INF3:** Surgery patients whose preventive antibiotics were stopped at the right time (within 24 hours after surgery); **INF6:** Surgery patients needing hair removed from the surgical area before surgery, who had hair removed using a safer method (electric clippers or hair removal cream – not a razor); **INF9:** Percent of surgery patients whose urinary catheters were removed on the first or second day after surgery; **VTE1:** Surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries; **VTE2:** Patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery.

2a.22 Describe the method for discriminating performance *(e.g., significance testing)*:

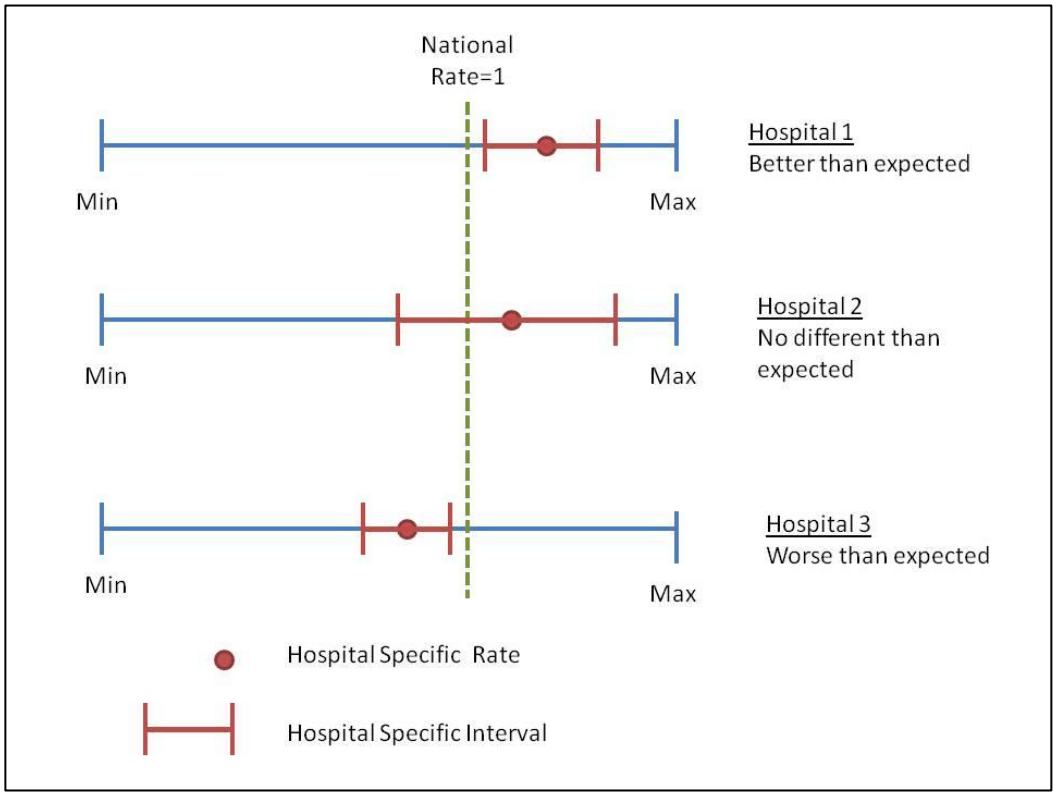
To examine meaningful differences in composite measures among hospitals, we compared hospitals' confidence interval estimates with the overall mean and assigned hospitals into one of three performance categories:

1. **Better-than-expected hospitals:** if the interval estimate is entirely above the mean;
2. **No-different-than-expected hospitals:** if the interval estimate includes the mean
3. **Worse-than-expected hospitals**: if the interval estimate is entirely below the mean.

These categories were used for illustrative analyses only and should not be assumed to be the manner in which these composites will be publicly reported.

We derived the standard error for each hospital and estimated an interval estimate around each hospital's mean composite measure. The interval estimate is a range of probable values for the composite measure that characterizes the amount of uncertainty associated with the estimate. We apply a 95 percent interval estimate, which indicates a 95 percent confidence level that the true composite measure is between the lower and upper limits of the interval. Figure 2a.22.1 shows how the hospitals are categorized into one of three performance categories. Complete information on the technical methodology for discriminating performance is contained in Appendix A, Section 3.1.

Figure 2a.22.1: Hospital Categorization



2a.23 Sampling (Survey) Methodology *If measure is based on a sample (or survey), provide instructions for obtaining the sample (or conducting the survey) and guidance on minimum sample size (response rate)*:
N/A

2a.24 Data Source *Check all the source(s) used in the component measures.*

- ☐ Documentation of original self-assessment *(e.g., SF-36)*
- ☒ Electronic administrative data/ claims
- ☐ Electronic Clinical Data *(e.g., MDS)*
- ☐ Electronic Health/Medical Record
- ☐ Paper Medical Record/flowsheet
- ☐ Pharmacy data
- ☐ Public health data/vital statistics
- ☐ Registry data

- ☐ External audit
- ☐ Lab data
- ☐ Management data
- ☐ Organizational policies and procedures
- ☐ Survey-patient *(e.g., CAHPS)*
- ☐ Survey-provider
- ☐ Special or unique data, specify:

2a.25 Data source or collection instrument (*Identify the specific data source or data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.*):

The composite is constructed from component measures posted on the Hospital Compare website.

2a.26 Data source/data collection instrument attached ☐ **OR 2a.27 at web page URL:**
http://www.hospitalcompare.hhs.gov/

2a.29 Data dictionary/code table attached ☐ **OR 2a.30 at web page URL:**
http://www.hospitalcompare.hhs.gov/

2a.32 Level of Measurement/Analysis (*Check the level for which the measure is specified and tested*)

Clinicians: ☐ Individual ☐ Group ☐ Other
- ☒ Facility/Agency (e.g., hospital, nursing home)
- ☐ Health plan
- ☐ Integrated delivery system
- ☐ Multi-site/corporate chain

Population: ☐ National ☐ Regional/network ☐ State ☐ Counties/Cities

- ☐ Prescription drug plan

Program: ☐ Disease management ☐ QIO ☐ Other

- ☐ Measured at all levels
- ☐ Other (*Please describe*):

2a.26 Care Settings (*Check the settings for which the measure is specified and tested; check all that apply*)
Ambulatory Care: ☐ Amb Surgery Center ☐ Office ☐ Clinic ☐ Emergency Dept ☐ Hospital Outpatient

- ☐ Assisted Living
- ☐ Behavioral health/psychiatric unit
- ☐ Dialysis Facility
- ☐ Emergency medical services/ambulance
- ☐ Group Home
- ☐ Home
- ☐ Hospice
- ☒ Hospital
- ☐ Long term acute care hospital
- ☐ Nursing home/ Skilled Nursing Facility (SNF)
- ☐ Rehabilitation Facility
- ☐ All settings
- ☐ Unspecified or "not applicable"
- ☐ Other (*Please describe*):

2a.38 Clinical Services (*Healthcare services being measured; all that apply.*)

Behavioral Health:
- ☐ Mental health
- ☐ Substance use treatment
- ☐ Other

Clinicians:
- ☐ Audiologist
- ☐ Chiropractor
- ☐ Dentist/Oral surgeon
- ☐ Dietician/Nutritional professional
- ☒ Nurses
- ☐ Optometrist
- ☐ PA/NP/Advanced Practice Nurse
- ☐ Pharmacist
- ☒ Physicians (MD/DO)
- ☐ Podiatrist
- ☐ Psychologist/LCSW
- ☐ PT/OT/Speech
- ☐ Respiratory Therapy
- ☐ Other

- ☐ Dialysis
- ☐ Home health
- ☐ Hospice/Palliative care
- ☐ Imaging services
- ☐ Laboratory
- ☐ Other

If the component measures are combined at the patient level and include outcomes, complete the following

2a.12 Risk Adjustment Type: ☐ No risk adjustment necessary ☐ analysis by subgroup ☐ case-mix adjustment ☐ paired data at patient level ☐ risk-adjustment devised specifically for this measure/condition ☐ risk adjustment method widely or commercially available ☐ Other (specify) **2a.13**

2a.14 Risk Adjustment Methodology/Variables (*List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**

2a.15 Detailed risk model attached ☐ OR 2a.16 at web page URL:

TESTING/ANALYSIS

2i. Component item/measure analysis to justify inclusion in composite

2i.1 Data/sample:

As noted in Section 1d, the purpose of the proposed composite is to summarize the process-of-care indicators associated with treatment of SCIP that are now reported under the Hospital Inpatient Quality Reporting Program. Our analysis aims to document the strength of associations among them.

The analysis reported here relies on data that are publicly reported on Hospital Compare. We used process-of-care indicators for SCIP collected between April 2009 and March 2010. We estimated composite measures for 2,837 hospitals (out of a potential 3,718 hospitals) for which:

1. The hospitals reported rates for all eight process-of-care indicators
2. Each process-of-care indicator had at least five cases

Background on Indicators Reported on *Hospital Compare*:
The indicators used in the construction of composites were drawn from *Hospital Compare*. The process-of-care indicators were drawn from Medicare hospital administrative claims data and medical record documents with discharge dates between April 2009 and March 2010.

2i.2 Analytic Method:

We carried out two analyses to explore the structure of the SCIP indicators. First, we examined correlations among all component indicators. Second, we conducted an exploratory factor analysis on the same component indicators. Results appear in Tables 2i.3.1 and 2i.3.2

2i.3 Results:

All correlations are positive, as Table 2i.3.1 shows, with most values above 0.2. In addition, the Cronbach's alpha is equal to 0.74, which exceeds the commonly desired value of 0.70, indicating strong consistency among the values for these measures.

The factor analysis of component measures (Table 2i.3.2) produced a single factor with an eigenvalue greater than one. The eigenvalue for the first factor was close to four times of the second factor, strongly suggesting that the component measures represent a single underlying construct.

Table 2i.3.1. Correlation of Variables in SCIP Composite Measure

	CARD 2	INF 1	INF 2	INF 3	INF 6	INF 9	VTE 1	VTE 2
CARD 2	1.00	0.40	0.27	0.39	0.28	0.32	0.34	0.36
INF 1	0.40	1.00	0.37	0.45	0.32	0.27	0.36	0.34
INF 2	0.27	0.37	1.00	0.43	0.19	0.27	0.34	0.33
INF 3	0.39	0.45	0.43	1.00	0.27	0.33	0.41	0.42
INF 6	0.28	0.32	0.19	0.27	1.00	0.18	0.23	0.22
INF 9	0.32	0.27	0.27	0.33	0.18	1.00	0.28	0.29
VTE 1	0.34	0.36	0.34	0.41	0.23	0.23	1.00	0.91
VTE 2	0.36	0.34	0.33	0.42	0.22	0.29	0.91	1.00
Chronbach Alpha	0.74							

Notes:
* **CARD2:** Surgery patients who were taking heart drugs called beta blockers before coming to the hospital, who were kept on the beta blockers during the period just before and after their surgery; **INF1:** Surgery patients who were given an antibiotic at the right time (within one hour before surgery) to help prevent infection; **INF2:** Surgery patients who were given the right kind of antibiotic to help prevent infection; **INF3:** Surgery patients whose preventive antibiotics were stopped at the right time (within 24 hours after surgery); **INF6:** Surgery patients needing hair

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removed from the surgical area before surgery, who had hair removed using a safer method (electric clippers or hair removal cream – not a razor); **INF9:** Percent of surgery patients whose urinary catheters were removed on the first or second day after surgery; **VTE1:** Surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries; **VTE2:** Patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery.

Table 2i.3.2. Factor Analysis Results

	Factor Loadings				
	Factor 1	Factor 2	Factor 3	Factor 4	Uniquenes s
SCIP CARD 2	0.49	0.27	0.03	-0.03	0.69
SCIP INF 1	0.58	0.37	-0.11	0.01	0.52
SCIP INF 2	0.49	0.14	0.16	0.03	0.71
SCIP INF 3	0.53	0.19	0.15	-0.01	0.65
SCIP INF 6	0.31	0.33	-0.26	0.00	0.73
SCIP INF 9	0.40	0.15	0.17	0.00	0.79
SCIP VTE 1	0.85	-0.39	-0.08	0.02	0.12
SCIP VTE 2	0.84	-0.41	-0.03	-0.02	0.12
Eigenvalues	2.79	0.08	0.17	0.00	
Proportion	0.88	0.22	0.05	0.00	
N	2,837				

Notes:
* **CARD2:** Surgery patients who were taking heart drugs called beta blockers before coming to the hospital, who were kept on the beta blockers during the period just before and after their surgery; **INF1:** Surgery patients who were given an antibiotic at the right time (within one hour before surgery) to help prevent infection; **INF2:** Surgery patients who were given the right kind of antibiotic to help prevent infection; **INF3:** Surgery patients whose preventive antibiotics were stopped at the right time (within 24 hours after surgery); **INF6:** Surgery patients needing hair removed from the surgical area before surgery, who had hair removed using a safer method (electric clippers or hair removal cream – not a razor); **INF9:** Percent of surgery patients whose urinary catheters were removed on the first or second day after surgery; **VTE1:** Surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries; **VTE2:** Patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery.

2j. Component item/measure analysis of contribution to variability in composite score

2j.1 Data/sample:

As noted in Section 1d, the purpose of the proposed composite is to summarize the process-of-care indicators associated with SCIP that are now reported under the Hospital Inpatient Quality Reporting Program. Because we do not justify the composite in terms of the behavior of individual indicators, our analysis aims to document their contributions to the measure.

Analysis of the contribution of component items to the variability in composite scores uses data that are publicly reported on Hospital Compare. We used process-of-care indicators for SCIP collected between April 2009 and March 2010. We estimated composite measures for 2,837 hospitals (out of a potential 3,718 hospitals) for which:

1. The hospitals reported rates for all eight process-of-care indicators
2. Each process-of-care indicator had at least five cases

Background on Indicators Reported on *Hospital Compare*:
The indicators used in the construction of composites were drawn from *Hospital Compare*. The process-of-care indicators were drawn from Medicare hospital administrative claims data and medical record documents with discharge dates between April 2009 and March 2010.

2j.2 Analytic Method:

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We compare the percentage change in (1) the variance and (2) the inter-quartile range (IQR) of the composite when a process-of-care indicator is removed. Results appear in Table 2j.3.1.

2j.3 Results:

In Table 2j.3.1, the positive values indicate that addition of the component indicator tends to reduce the variance or IQR. Only two measures, INF2 andINF6 (surgery patients who were given the right kind of antibiotic to help prevent infection and surgery patients needing hair removed from the surgical area before surgery, who had hair removed using a safer method), exhibit a nontrivial negative effect on the composite variance.

Table 2j.3.1. Change in Inter-quartile Range and Variance of the Composite with the Removal of Indicators

	Overall Composite	
Remove:	Change in Variance (%)	Change in Inter-quartile Range (%)
SCIP CARD 2	-8.95	-7.40
SCIP INF 1	3.01	6.85
SCIP INF 2	23.95	12.16
SCIP INF 3	-6.61	-5.46
SCIP INF 6	45.63	28.40
SCIP INF 9	-2.28	-1.11
SCIP VTE 1	-7.17	-5.51
SCIP VTE 2	-8.48	-8.49

Notes:
* **CARD2:** Surgery patients who were taking heart drugs called beta blockers before coming to the hospital, who were kept on the beta blockers during the period just before and after their surgery; **INF1:** Surgery patients who were given an antibiotic at the right time (within one hour before surgery) to help prevent infection; **INF2**: Surgery patients who were given the right kind of antibiotic to help prevent infection; **INF3**: Surgery patients whose preventive antibiotics were stopped at the right time (within 24 hours after surgery); **INF6**: Surgery patients needing hair removed from the surgical area before surgery, who had hair removed using a safer method (electric clippers or hair removal cream - not a razor); **INF9**: Percent of surgery patients whose urinary catheters were removed on the first or second day after surgery; **VTE1**: Surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries; **VTE2**: Patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery.

2k. Analysis to support differential weighting of component scores

2k.1 Data/sample:

In constructing the composite, individual component indicators are weighted, in each instance, by the number of observations for the indicator. The most frequently reported indicators therefore affect the composite most strongly. In addition, the weighting scheme tends to reduce the variance of the composite, though this effect might be muted if individual indicators have similar distributions.

Testing to support differential weighting of composite scores relies on data that are publicly reported on Hospital Compare. We used process-of-care indicators for SCIP collected between April 2009 and March 2010. We estimated composite measures for 2,837 hospitals (out of a potential 3,718 hospitals) for which:

1. The hospitals reported rates for all eight process-of-care indicators

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2. Each process-of-care indicator had at least five cases

Background on Indicators Reported on *Hospital Compare*:
The indicators used in the construction of composites were drawn from *Hospital Compare*. The process-of-care indicators were drawn from Medicare hospital administrative claims data and medical record documents with discharge dates between April 2009 and March 2010.

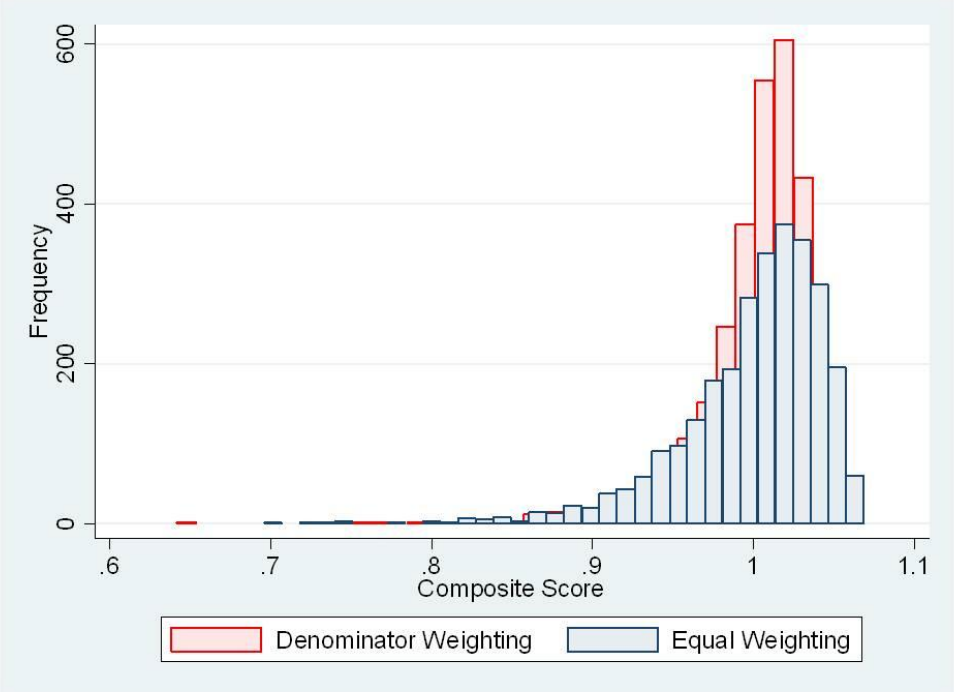
2k.2 Analytic Method:

We compare the distribution of the SCIP composite measure with equal and differential weighting.

2k.3 Results:

Figure 2k.3.1 displays the distribution of the SCIP composite measure with equal and differential weighting. As the table shows, denominator weighting tends to tighten slightly the distribution of the composite. The inter-quartile range is 0.05 under equal weighting and 0.03 under denominator weighting. A table of the distribution of composite scores is also provided in the appendix (Table 2k.3.1)

Figure 2k.3.1: Comparison of Composite Measure using Denominator and Equal Weighting



2k.4 Describe how the method of scoring/aggregation achieves the stated purpose and represents the quality construct:

The objective of the composite is to summarize the component measures in a useful and scientifically acceptable manner. Because composites are most useful to consumers if differences in composite values are clinically and statistically meaningful and reflect true differences in underlying quality, CMS entered component measures as values, not ranks, and adjusted those values for reliability. CMS entered component measures as values rather than ranks to prevent slight differences in composite values from producing large differences in composite values, as can occur when indicators are tightly distributed across hospitals. CMS also adjusted the component indicators for reliability so that random variation did not skew the measure estimates for small hospitals to extreme values. Process measures are not adjusted for reliability before publication; the adjustment is made as part of the compositing process.

In addition, because composites are more useful to consumers if they emphasize measures that are relevant to a large numbers of consumers, CMS constructed the composite score using weights based on national denominators. When sample sizes (i.e., hospital case size nationally) are equal, each component process measure contributes equally to the SCIP composite. Thus a hospital that improves in any component will necessarily produce an increase in its composite score. Hospitals can therefore choose where to focus improvement efforts in evidence-based processes of care. The composite thus fully reflects the SCIP process-of-care indicators and represents the quality construct expressed earlier.

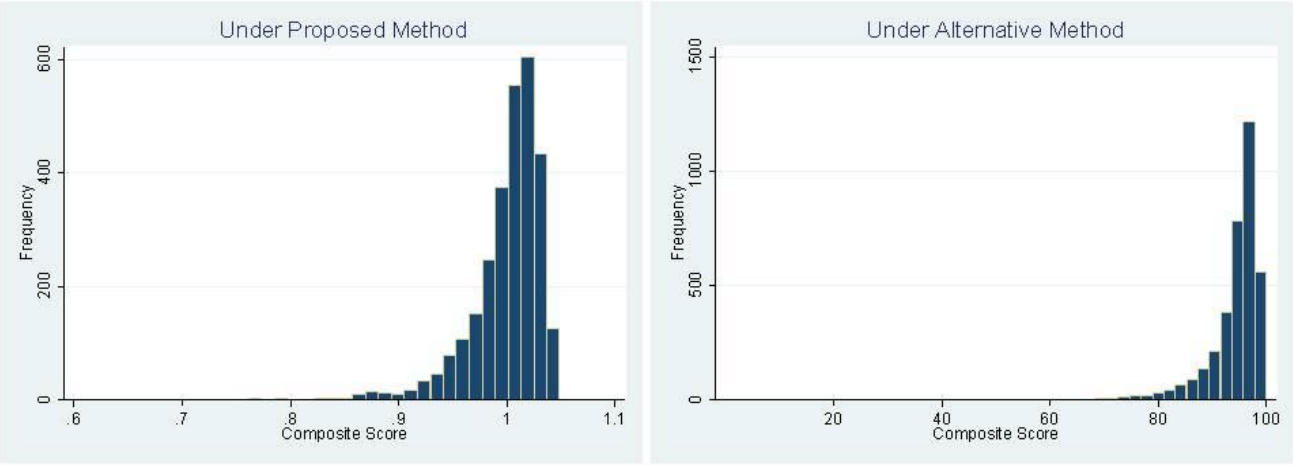
2k.5 Indicate if any alternative scoring/aggregation methods were tested and why not chosen:

In addition to the preferred compositing approach, we tested an alternative scoring approach that differed on two levels. First, we estimated composite scores for hospitals that were missing less than half of the indicators. That is, if a hospital had two or more indicators, a composite score was estimated. We imputed missing values with the national mean. Second, we used an alternative standardization approach by subtracting the national mean and dividing by the standard deviation, before taking the simple average of the indicator scores. Because this could result in negative composite values for some hospitals, the score was then rescaled to a range between zero and one hundred.

In Figure 2k.5.1, we present distributions of the two alternative scoring methods. The figures show that the second approach (Alternative Method) leads to composite scores with a tight distribution as a result of the standardization approach; therefore, our proposed approach should provide users with a distribution that is easier for consumers to view. Furthermore, our reevaluated compositing approach reduces potential misinterpretations by consumers that the composite score is an actual rate between zero and 100 percent. A table of the distribution of composite scores is also provided in the appendix (Table 2k.5.1)

Furthermore, we considered, but rejected, alternative weighting schemes that would reduce the weight assigned to indicators that were strongly left-skewed (often referred to as "topped off"). This can be done, for example, by constructing weights that depend on the difference between the national mean for an indicator and the highest possible score. First, we are disinclined to make judgments about the relative importance of endorsed indicators. It does not appear reasonable to argue that an element of care becomes "less important" in a composite because many hospitals report providing it. Second, at a purely practical level, the distributions of the eight SCIP process indicators do not sharply differ from one another, so weighting in this fashion would produce a result resembling equal weighting. Finally, and perhaps most importantly, such an approach to weighting would make a hospital's score dependent on the behavior of other hospitals. For example, a hospital that performed well on indicator A and poorly on indicator B would receive a higher score if other hospitals performed poorly on A and well on B than it would if other hospitals performed well on A and poorly on B. This is not, in our view, a desirable property for a composite to have.

Figure 2k.5.1: Comparison of Composite Scores between the Proposed and Alternative Methods



2l. Analysis of missing component scores

2l.1 Data/sample:

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Construction of the composite scores relies on data that are publicly reported on Hospital Compare. We used process-of-care indicators for SCIP collected between April 2009 and March 2010. We estimated composite measures for 2,837 hospitals (out of a potential 3,718 hospitals) for which:

1. The hospitals reported rates for all eight process-of-care indicators
2. Each process-of-care indicator had at least five cases

Background on Indicators Reported on *Hospital Compare*:
The indicators used in the construction of composites were drawn from *Hospital Compare*. The process-of-care indicators were drawn from Medicare hospital administrative claims data and medical record documents with discharge dates between April 2009 and March 2010.

Of the 3,718 hospitals, 881 did not receive a composite score for one or more of the following reasons:

1. The hospital was missing a rate for one or more of the process-of-care indicators (8.4%)
2. The hospital reported a case size of zero for one or more of the process-of-care indicators; therefore a hospital specific rate was not reported (7.9%)
3. The hospital reported a case size of greater than zero, but less than five cases for one or more process-of-care indicator (18.8%)

2l.2 Analytic Method:

We examined whether there were differences in the distribution of the process-of care rates for all hospitals compared to those hospitals for which there were no missing process -of-care indicators so that composites were estimated for these hospitals.

2l.3 Results:

Figure 2l.3.1 show that there is very little difference in the distribution of each of the components indicators between those hospitals that had a composite score calculated (i.e., those with no missing indicators and for the full sample of hospitals. Specific distributions for each of the indicators are available in Table 2l.3.1 in the appendix.

Figure 2l.3.1: Comparison of Indicators between All Hospitals and those with Composite Scores

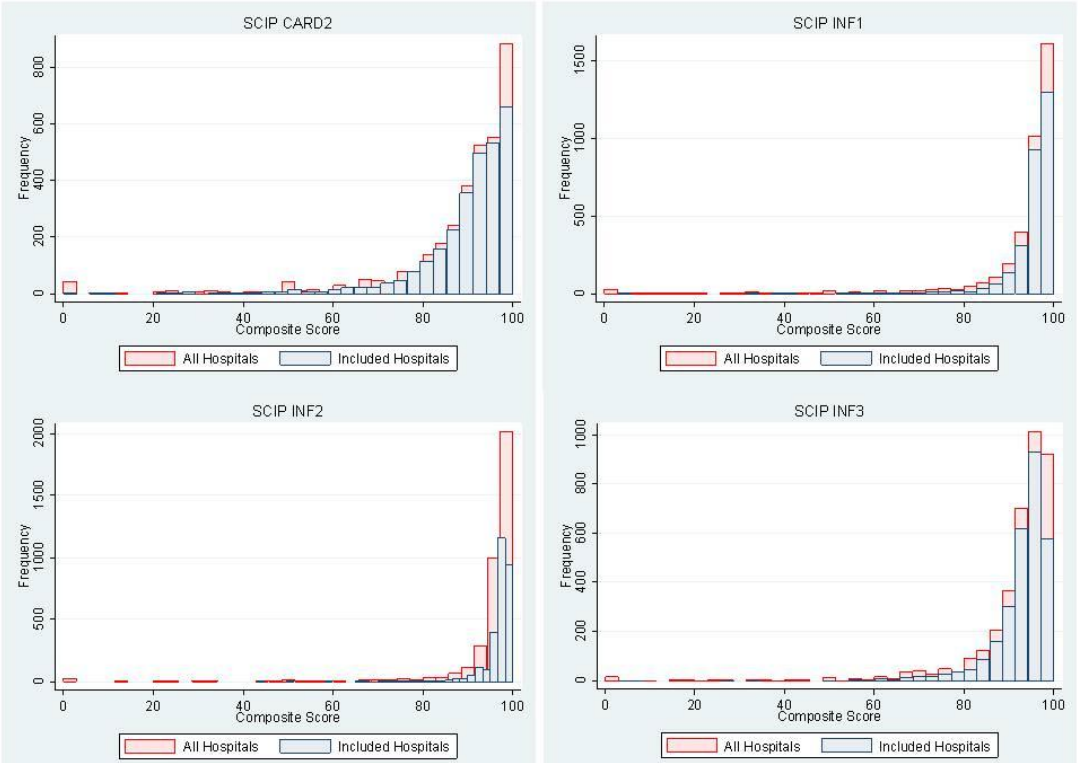

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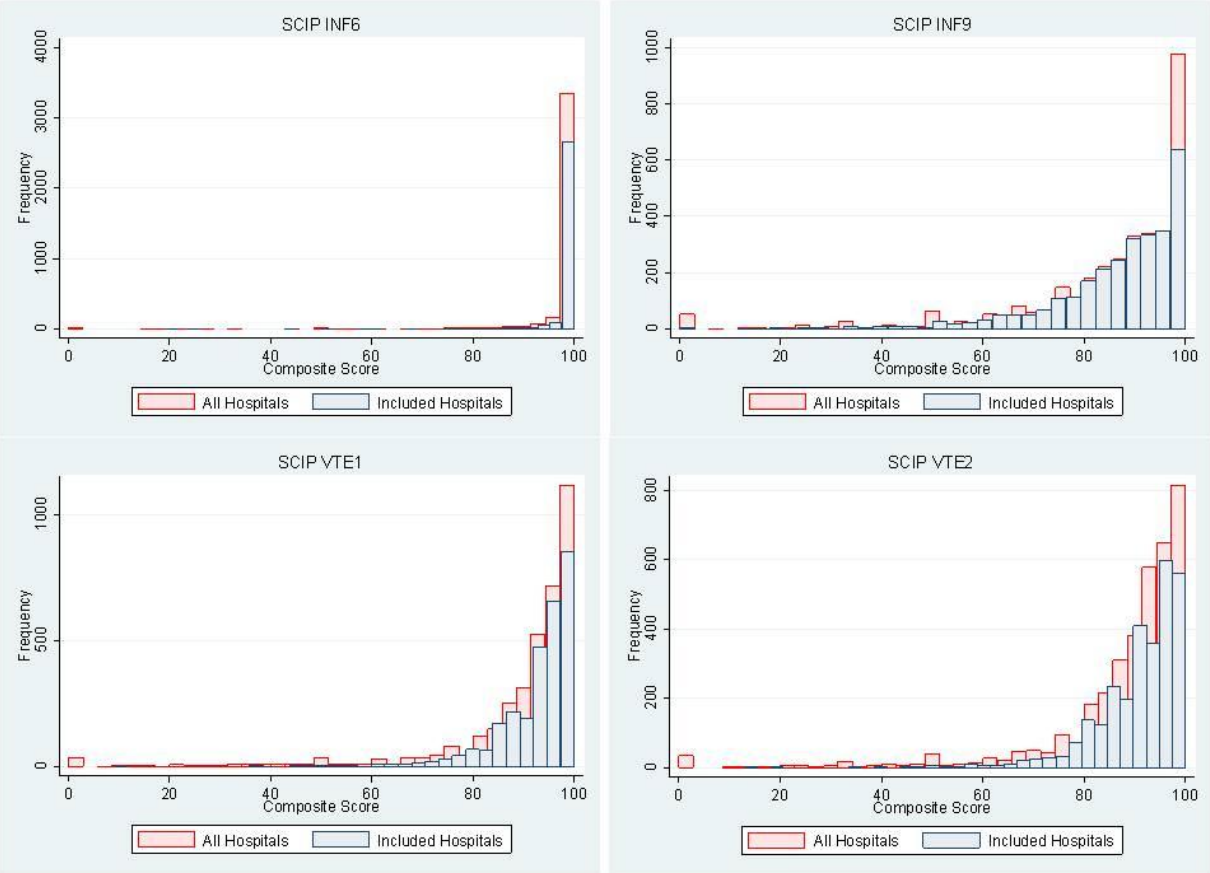
Figure 2l.3.1 (cont.)



Notes:
* CARD2: Surgery patients who were taking heart drugs called beta blockers before coming to the hospital, who were kept on the beta blockers during the period just before and after their surgery; INF1: Surgery patients who were given an antibiotic at the right time (within one hour before surgery) to help prevent infection; INF2: Surgery patients who were given the right kind of antibiotic to help prevent infection; INF3: Surgery patients whose preventive antibiotics were stopped at the right time (within 24 hours after surgery); INF6: Surgery patients needing hair removed from the surgical area before surgery, who had hair removed using a safer method (electric clippers or hair removal cream - not a razor); INF9: Percent of surgery patients whose urinary catheters were removed on the first or second day after surgery; VTE1: Surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries; VTE2: Patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery.

2b. Reliability testing of composite score

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

The reliability of the proposed SCIP composite measure is informed by the reliability of the component scores on which it is based. While there is no specific information available on the reliability of the SCIP component measures, two reports, one by Williams et al and the other by the Government Accountability Office (GAO), do provide insight into the general reliability of Hospital Compare measures:

Williams SC, Watt A, Schmaltz SP, Koss RG, Loeb JM. *Assessing the reliability of standardized performance indicators*. Int J Qual Health Care. 2006 Jun;18(3):246-55. Epub 2006 Jan 23.

Williams et al examined the reliability of Hospital Compare process-of-care indicators for Acute Myocardial Infarction (AMI), Heart Failure (HF), Pneumonia (PN) and Pregnancy. Their sample included 30 hospitals, representing a diverse range of geographic locations, sizes, settings (urban/rural), and ownership categories (profit/not-for-profit). Among these, 19 of these collected AMI data, 17 collected HF and PN data, and 7 collected pregnancy data. A randomly selected set of

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de-identified, previously abstracted medical records was transmitted from the hospitals' performance measurement vendors and process-of-care indicators were reabstracted following guidelines from the Specification Manual for National Implementation of Hospital Core Measures. Sample sizes used to calculate each measure generally ranged from 100 – 200 cases, although for certain measures (e.g., AMI-4: Smoking cessation counseling, and AMI-8A: First PCI time), the sample size was less than 50.

United States. Government Accountability Office. Report to the Committee on Finance, U.S. Senate. *Hospital Quality Data: CMS Needs More Rigorous Methods to Ensure Reliability of Publicly Released Data*. Report No. GAO-06-54, Jan. 31, 2006

The 2006 GAO report summarizes CMS' process to assess the reliability of the measures currently reported on Hospital Compare, and reports the results of this process for hospital discharges between January 1, 2004 through June 30, 2004. The reliability of the component measures is assessed on a quarterly basis by CMS' contractor, CDAC (Clinical Data Abstraction Center). This assessment uses a sample of five (5) randomly patient records from each hospital participating in the Hospital Inpatient Quality Reporting program, which includes hospitals from all states but Maryland and Puerto Rico.[i]

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

Williams SC, Watt A, Schmaltz SP, Koss RG, Loeb JM. *Assessing the reliability of standardized performance indicators*. Int J Qual Health Care. 2006 Jun;18(3):246-55. Epub 2006 Jan 23.

Reliability was assessed using percent agreement for continuous variable elements and chance-corrected agreement using Cohen's kappa for binary data elements.

United States. Government Accountability Office. Report to the Committee on Finance, U.S. Senate. *Hospital Quality Data: CMS Needs More Rigorous Methods to Ensure Reliability of Publicly Released Data*. Report No. GAO-06-54, Jan. 31, 2006

For each hospital, data are deemed reliable if there is 80% or greater agreement between the hospital quality data previously submitted to CMS and the CDAC reabstraction results.

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

Williams SC, Watt A, Schmaltz SP, Koss RG, Loeb JM. *Assessing the reliability of standardized performance indicators*. Int J Qual Health Care. 2006 Jun;18(3):246-55. Epub 2006 Jan 23.

Table 2b.3.1 below summarizes the reliability statistics for twenty-one selected AMI, HF, and PN measures that are representative of data reported on Hospital Compare. Using the standards proposed by Landis & Koch (1977)[1], the resulting kappas indicate almost perfect agreement (kappa > 0.81) for eight of the measures, substantial agreement (kappa ranging from 0.61 – 0.80) for seven measure, and moderate agreement (kappa ranging from 0.41 – 0.60) for six measures. Given the overall high levels of agreement (moderate or above) reported for these Hospital Compare measures, it is reasonable to assume that the SCIP component measures, which are collected using similar processes and reporting mechanisms, should also have moderate or higher reliability.

United States. Government Accountability Office. Report to the Committee on Finance, U.S. Senate. Hospital Quality Data: CMS Needs More Rigorous Methods to Ensure Reliability of Publicly Released Data. Report No. GAO-06-54, Jan. 31, 2006

[i] As a result of the GAO report, in 2010 this process changed so that CDAC instead reviews 12 patient records from a randomly selected sample of 800 hospitals.

The GAO report, which looked at reporting from January 1, 2004 through June 30, 2004, found that 90% of hospitals exceeded the 80% reliability threshold.

Table 2b.3.1. Reliability Findings by Williams et al, 2006.

	N	Agreement (%)	Kappa
AMI Measures			
AMI-1	200	90.5	0.54
AMI-2	156	84.6	0.52
AMI-3	101	91.1	0.82
AMI-4	44	93.2	0.85
AMI-5	156	91.0	0.76
AMI-7A	143	95.8	0.81
AMI-8A	34	64.7	Not Calculated
HF Measures			
HF-1*			
Discharge instructions to address activity	180	86.1	0.65
Discharge instructions to address diet	180	90.0	0.73
Discharge instructions address follow-up	180	87.8	0.47
Discharge instructions address medications	180	90.6	0.53
Discharge instructions address symptoms	180	86.1	0.71
Discharge instructions address weight	180	90.6	0.81
HF-2	201	88.6	0.78
HF-3	116	94.0	0.88
HF-4	35	88.6	0.68
Pneumonia Measures			
PN-1	87	94.3	0.85
PN-2			
PN Vaccination Status	98	93.9	0.92
PN Vaccination Given	97	97.9	0.79
PN-3B	87	94.3	0.85
PN-4	35	77.1	0.55
PN-5C	169	88.2	0.54

Notes:
*HF-1 includes written instructions or educational material given to patient or caregiver at discharge or during the hospital stay addressing all of the following: activity level, diet, discharge medications, follow-up appointment, weight monitoring, and what to do if symptoms worsen.

Citations

1. Landis, J.R.; & Koch, G.G. (1977). *The measurement of observer agreement for categorical data.* Biometrics 33: 159-174

2c. Validity testing of composite score

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

The testing of the validity of the component scores uses two sets of data. The first data uses process-of-care measures from April 2008-March 2009 and the second data set uses process-of-care measures from April 2009 to March 2010. Composite measures are calculated for hospitals where:

1. The hospitals reported rates for all eight process-of-care indicators
2. Each process-of-care indicator had at least five cases

The composite measures from these time periods were then compared. Across these two data collection periods, 2,706 hospitals had valid composite measures for SCIP. It should be noted that SCIP INF9, percent of surgery patients whose urinary catheters were removed on the first or second day after surgery, was not included in the construction of the composite indicators used for this analysis because the data was not reported prior to Dec. 2010 (April 2009-March 2010 reporting period).

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

Using the two sets of data, we compared composite measures across the two years using Spearman (rank) correlations, to test to see if the construction of the composite measure is consistent over time.

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:

The Spearman correlation between composite measures computed in 2007-2008 and 2008-2009 was 0.74 ($p<0.001$), indicating moderate predictive validity of the composite (see Table 2c.3.1.). A large number of hospitals (around 55 percent) lie on the diagonal, such that the same hospital quartiles for composite values were occupied during 2007-2008 and 2008-2009. In contrast, 28 hospitals (around one percent) occupy the first quartile in 2007-2008 and the fourth quartile in 2008-2009, and vice versa. Across the two separate time periods, around 39 percent of hospitals' categorizations differ by one quartile (i.e., during 2008-2009, a hospital was one quartile above or below its categorization in 2007-2008). This discrepancy appears to be a result of the tight distribution of the process-of-care indicators.

Table 2c.3.1. Correlation of Composite Measures by Reporting Period

2008-2009 Reporting*	2009-2010 Reporting**				
	Quartile 1	Quartile 2	Quartile 3	Quartile 4	Total
Quartile 1***	457	139	56	25	677
Quartile 2	178	280	162	56	676
Quartile 3	39	205	252	181	677
Quartile 4	3	52	207	414	676
Total	677	676	677	676	2,706
Spearman Correlation****	0.74 (0.000)				

Notes:
* 2008-2009 reporting: process-of-care measures with a data collection period of April 2008 to March 2009.
** 2008-2009 reporting: process-of-care measures with a data collection period of April 2009 to March 2010.
*** Higher quartile categories indicate that the hospital had higher (i.e., better quality) composite measures.
**** P-values in parentheses.

2f. Identification of Meaningful Differences in Performance Across Entities

2f.1 Data/sample from Testing or Current Use *(description of data/sample and size)*:

Testing to identify meaningful differences in performance relies on data that are publicly reported on Hospital Compare. We used process-of-care indicators for SCIP collected between April 2009 and March 2010. We estimated composite measures for 2,837 hospitals (out of a potential 3,718 hospitals) for which:

1. The hospitals reported rates for all eight process-of-care indicators
2. Each process-of-care indicator had at least five cases

Background on Indicators Reported on *Hospital Compare*:
The indicators used in the construction of composites were drawn from *Hospital Compare*. The process-of-care indicators were drawn from Medicare hospital administrative claims data and medical record documents with discharge dates between April 2009 and March 2010.

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2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance *(type of analysis & rationale)*:

To examine meaningful differences in composite measures across hospitals, we compared hospitals' confidence interval estimates with the overall mean and assign hospitals into one of three performance categories: "better than hospitals", if the interval estimate is entirely above the mean; "no different than hospitals", if the interval estimate includes the mean; and "worse than hospitals", if the interval estimate is entirely below the mean. These performance categories do not reflect how the composites will ultimately be displayed on Hospital Compare.

2f.3 Provide 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)*:

Table 2f.3.1 provides the number of hospitals in each of the three performance categories. These performance categories do not reflect how the composites will ultimately be displayed on Hospital Compare. Note: CMS is in the process of evaluating different formats for displaying information on hospital performance to consumers on Hospital Compare or to providers in hospital-specific reports.

The total number of hospitals in each performance category is displayed in Table 2f.3.1. The table shows that there are meaningful differences in the overall composite score as 1,318 or around 47 percent of hospitals are categorized as being statistically better than the national average. 654, or around 23 percent, of hospitals are categorized as being statistically worse than the national average.

Table 2f.3.1. Number of Hospitals in Alternative Performance Categories

Performance Category	Number of Hospitals
Worse than Mean	654
No Different than Mean	865
Better than Mean	1,318
TOTAL	2,837

2h. Disparities in Care

2h.1 If measure is stratified, provide stratified results *(scores by stratified categories/cohorts)*:
The measure is not stratified.

2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:

The distribution of composite scores by the following hospital characteristics:

1. Hospital bed size
2. Ownership status
3. Teaching status
4. Census region
5. Percentage of patients that was black.

Slight differences in the distribution were observed for hospital bed size, teaching status, census region, and race. Figures 2h.2.1-2h.2.4 present distributions for these characteristics. This analysis demonstrates that

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composite scores increase at most points along the distribution when hospital bed sizes increases as well as when the hospital is a teaching hospital (although teaching hospitals may also be more likely to be larger hospitals). Furthermore, the Northeast census region has the highest composite score along most points of the distribution and the West has the lowest composite score along most points of the distribution. Lastly, hospitals that serve a higher proportion of black patients (i.e., >30 percent of discharges are black patients) have lower composite scores at most points along the distribution.

Figure 2h.2.1: Comparison of Composite Scores by Hospital Bed Size

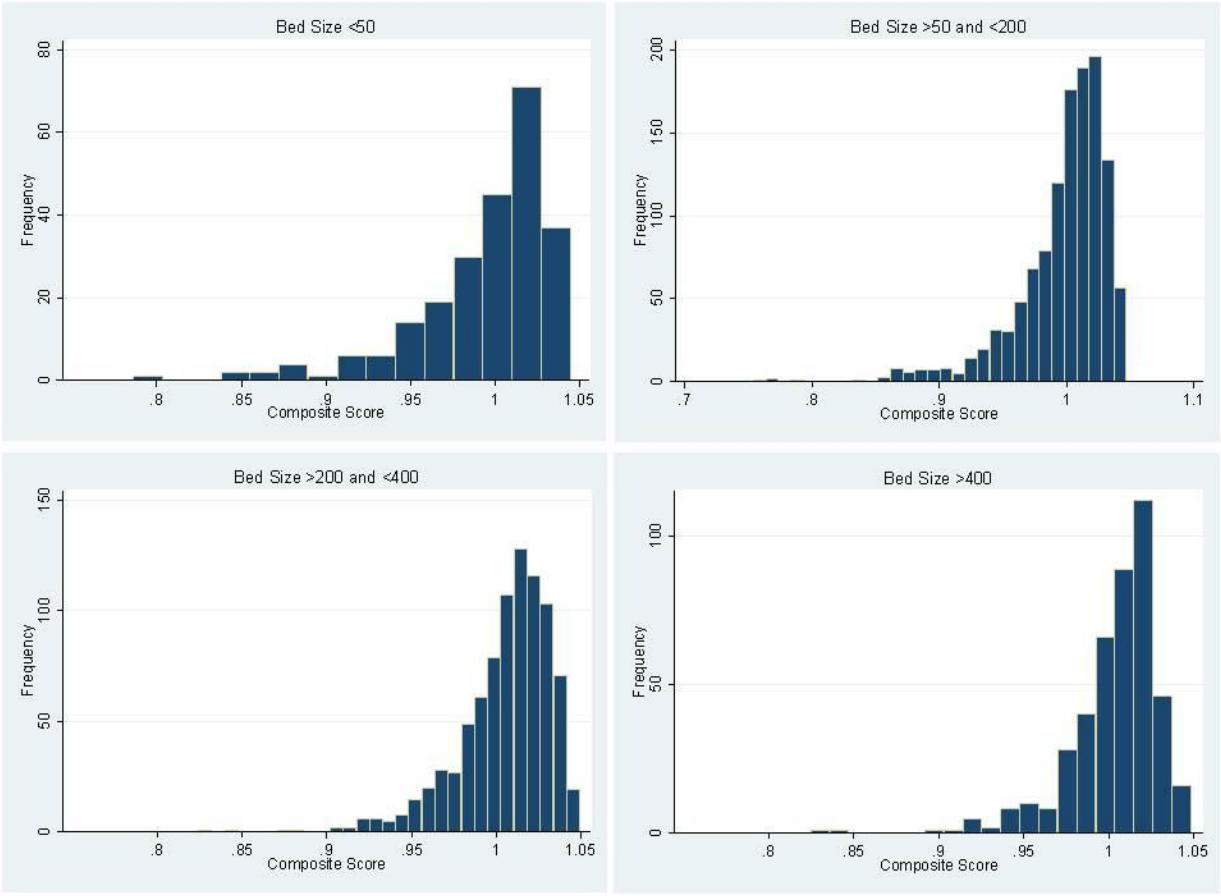


Figure 2h.2.2: Comparison of Composite Scores by Teaching Hospital Status

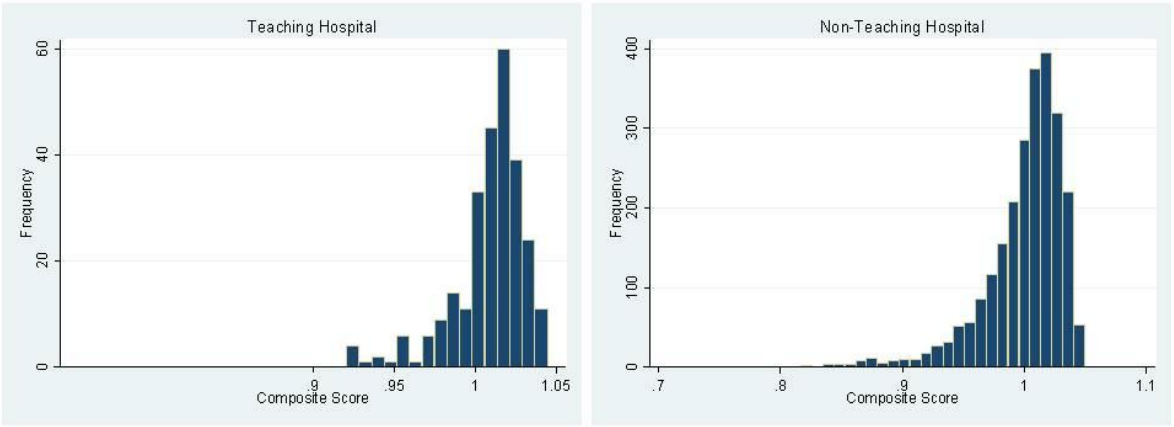


Figure 2h.2.3: Comparison of Composite Scores by Census Region

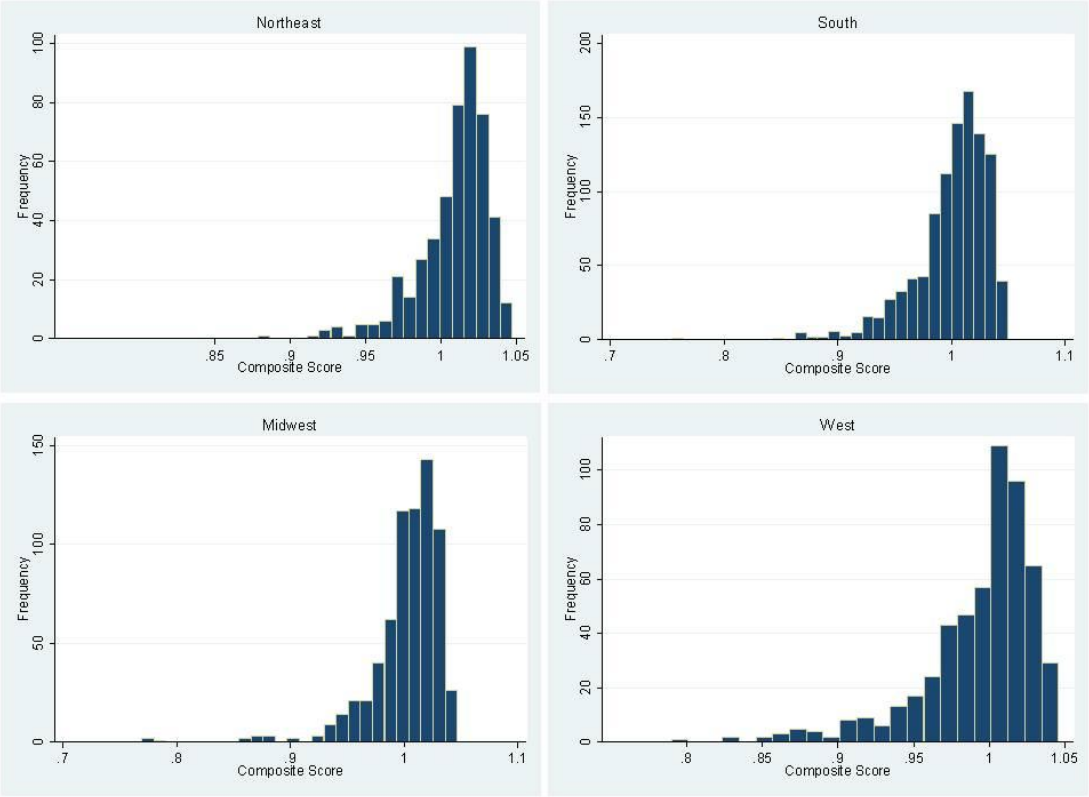
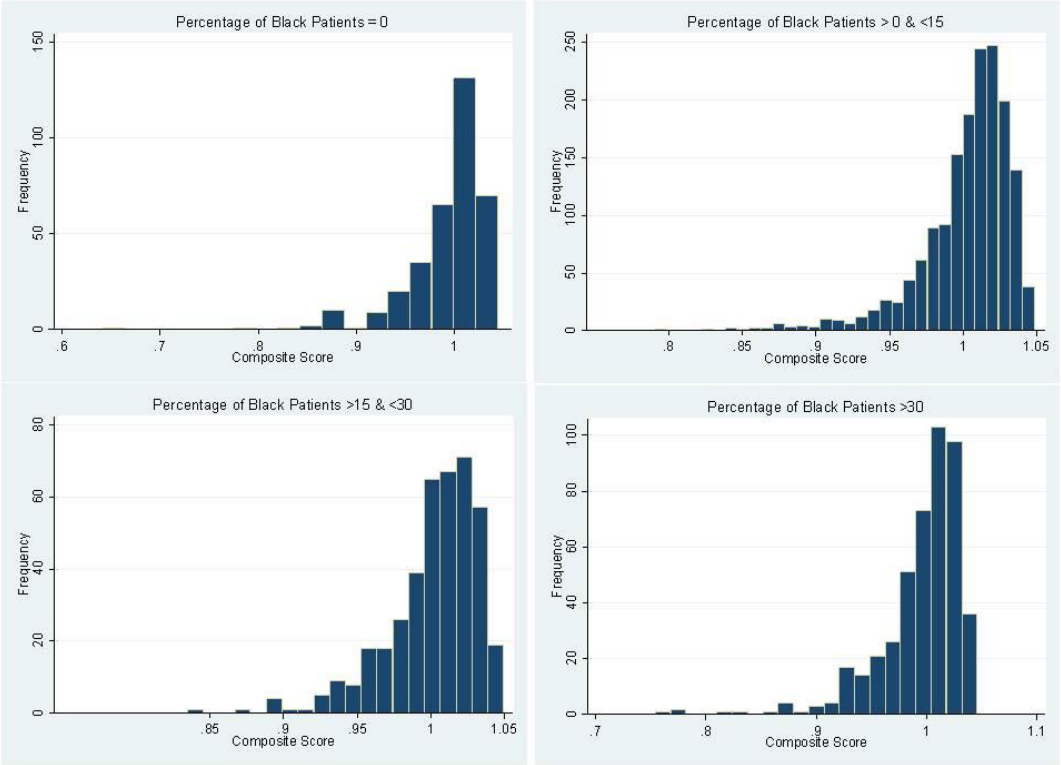


Figure 2h.2.4: Comparison of Composite Scores by Percentage of Blacks



If the component measures are combined at the patient level, complete 2d. **2d. Exclusions Justified** **2d.1 Summary of Evidence supporting exclusion(s):** **2d.2 Citations for Evidence:** **2d.3 Data/sample** *(description of data/sample and size)*: **2d.4 Analytic Method** *(type analysis & rationale)*: **2d.5 Testing Results** *(e.g., frequency, variability, sensitivity analyses)*:	**2d** H☐ M☐ L☐ N☐ NA☐
If the component measures are combined at the patient level and include outcomes, complete 2e. **2e. Risk Adjustment** **2e.1 Data/sample** *(description of data/sample and size)*: **2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*: **2e.3 Testing Results** *(risk model performance metrics)*: **2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:**	**2e** H☐ M☐ L☐ N☐ NA☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met? **Rationale:**	**2** C☐ P☐ M☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (composite measure evaluation criteria)	**Eval**
3a. Meaningful, Understandable, and Useful Information **3a.1 Current Use:** ☐ In use ☒ Not in use **3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large)** *(If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years)*: Following NQF endorsement, public reporting is expected on *Hospital Compare* sometime in 2012. **3a.3 If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** Following NQF endorsement, CMS plans to publicly report this composite on *Hospital Compare*. CMS' current timetable calls for this public reporting to occur in 2012. CMS' experience indicates that hospitals closely scrutinize measures reported on *Hospital Compare* and consider these results as part of their quality improvement efforts. **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for*	**3a** C☐ P☐ M☐ N☐

public reporting and quality improvement)

3a.4 Data/sample *(description of data/sample and size)*:

Several studies suggest that the proposed composite measure will improve consumers' understanding of hospital performance for SCIP patients, and be an asset to clinicians. In work that is directly relevant to the proposed measure, Borck et al held a series of focus groups that evaluated consumer and clinician understanding of condition-specific composite measures for AMI, HF, Pneumonia and SCIP that are very similar to the proposed measure. As well, their work evaluated understanding of AHRQ and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) composite measures. In addition, work by Smith et al examined the interpretability of Hospital Compare data, including several of the component measures in the proposed composite. A further study by Peters et al also provides insight into consumer understanding of publicly reported hospital quality measures.

Borck, M, Thomas, C, & Gerteis, M. Transparency in Public Reporting: Consumer Testing and Enhancements to CMS's Compare Tools: *Topline Summary of Findings from Round #1 Interviews with Consumers*, April 9, 2009, and *Topline Summary of Findings from Round #2 Interviews with Consumers and Physicians*, *Composite measures of quality for Hospital Compare*, June 11, 2009. Memoranda to the Centers for Medicare & Medicaid Services.

> *Round 1:* Borck et al used a convenience sample of 21 consumers in the Baltimore, MD area. Participants ranged from 45-70 years old, were 67% women, and 48% Medicare beneficiaries.
> *Round 2:* Borck et al used a convenience sample of 18 consumers and 5 physicians from the Miami, FL area. The group had an age range of 45 to 70 years old, and were made up of a majority of men and Medicare beneficiaries.

Smith F, Gerteis M, Burnes A, Gerteis J, Crelia S, Silva N. *Usability Testing of the "Hospital Compare" Website*. Final Report to Centers for Medicare & Medicaid Services. August 29, 2005.

> Smith et al used a sample of 51 consumers and 40 health care providers to assess their ability to understand Hospital Compare content and navigate the user interface website. Among the consumers, 47 out of 51 (92%) were over 65 years, and of the over 65 group, 53% were Medicare beneficiaries at risk for heart disease. Among the health care providers, 30% were nurses, 38% were primary care physicians, and the remainder were cardiologists and pulmonologists.

Peters E, Dieckmann N, Dixon A, Hibbard JH, Mertz CK. *Less is more in presenting quality information to consumers*. Med Care Res Rev. 2007 Apr;64(2):169-90.

> Peters et al employed a convenience sample of employed-age adults (18 – 64 years old, mean age of 37, 48% female, and 76% white) to determine whether providing only the most important quality information increase comprehension and information use. Half of the sample had lower levels of education (high school or less), 45% had health insurance and 74% had an annual household income of less than $20,000.

3a.5 Methods *(methods, e.g., focus group, survey, QI project)*:

Borck, M, Thomas, C, & Gerteis, M. Transparency in Public Reporting: Consumer Testing and Enhancements to CMS's Compare Tools: *Topline Summary of Findings from Round #1 Interviews with Consumers*, April 9, 2009, and *Topline Summary of Findings from Round #2 Interviews with Consumers and Physicians*, *Composite measures of quality for Hospital Compare*, June 11, 2009. Memoranda to the Centers for Medicare & Medicaid Services.

> Borck et al used a mock Hospital Compare website that presented the composite quality measures of interest. Using a standard interview protocol, in-depth, one on one discussions were utilized to assess comprehension of composite measures, organization and presentation of the site, and composite labels and descriptions.

Smith F, Gerteis M, Burnes A, Gerteis J, Crelia S, Silva N. *Usability Testing of the "Hospital Compare" Website*. Final Report to Centers for Medicare & Medicaid Services. August 29, 2005.

Smith et al tested consumers' and health providers' ability to understand and use the "Hospital Compare" website using both in-depth one on one interviews and dyads (interviews that involve two respondents and one interviewer). Using a Hospital Compare website prototype, participants were first allowed to navigate the website independently and then asked a series of open-ended questions using an approved protocol during an approximately two-hour period.

Peters E, Dieckmann N, Dixon A, Hibbard JH, Mertz CK. *Less is more in presenting quality information to consumers*. Med Care Res Rev. 2007 Apr;64(2):169-90.

Peters et al assigned participants to one of three groups, each of which were presented with hospital quality data in a different format. In the first group, data on cost, quality, and non-quality information was unordered. In the second, cost and quality data was highlighted and presented first, while non-quality information was presented last and not emphasized. In the final group, only cost and quality information was shown, and quality information was highlighted. Within each of these groups, respondents were then shown information about three hospitals and asked to choose a hospital and answer a series of questions.

3a.6 **Results** *(qualitative and/or quantitative results and conclusions)*:

Borck, M, Thomas, C, & Gerteis, M. Transparency in Public Reporting: Consumer Testing and Enhancements to CMS's Compare Tools: *Topline Summary of Findings from Round #1 Interviews with Consumers*, April 9, 2009, and *Topline Summary of Findings from Round #2 Interviews with Consumers and Physicians*, *Composite measures of quality for Hospital Compare*, June 11, 2009. Memoranda to the Centers for Medicare & Medicaid Services.

This work yielded several important results that are directly relevant to the proposed condition-specific composite measure. Most significantly, all respondents from Round 1 correctly interpreted the star ratings for the condition-specific composites (AMI, HF, Pneumonia and SCIP) and the HCAHPS composite measure. Round 1 also revealed that almost all participants preferred more descriptive definitions of the composites, and specifically that included a list of all the component measures making up the composite. Similarly to Round 1 findings, in Round 2 respondents were also found to be able to correctly interpret the star ratings for condition-specific quality ratings composites and the HCAHPS composite. However, some respondents in Round 2 did not understand that the condition-specific composite ratings included all of the individual component measures. These results indicate that the proposed condition-specific composite, which is very similar to the condition-specific measures evaluated by Borck et al, should also be easy for consumers to use. Moreover, any composite definition posted on Hospital Compare should include a list of all component measures.

Smith F, Gerteis M, Burnes A, Gerteis J, Crelia S, Silva N. *Usability Testing of the "Hospital Compare" Website*. Final Report to Centers for Medicare & Medicaid Services. August 29, 2005.

This early analysis of Hospital Compare's usability revealed that consumers tended to be overwhelmed by the amount of information available on the website, and that detailed information about interpretation added to this sense of overload. The provider participants concurred with this sentiment. While these results certainly suggest certain challenges in making hospital quality data user friendly, the proposed composite measure is intended to address this very issue by creating a single benchmark that enables consumers to evaluate the quality of care at a given hospital for a given condition.

Peters E, Dieckmann N, Dixon A, Hibbard JH, Mertz CK. *Less is more in presenting quality information to consumers*. Med Care Res Rev. 2007 Apr;64(2):169-90.

Similarly to Smith et al, Peters et al determined that "less is more" with regards to consumer understanding of hospital quality data. They found that consumer comprehension was highest when only the most relevant quality information was shown and highlighted relevant to the other information. Specifically, 62% of respondents choose the highest quality hospital Y when only the quality information was shown, while in the other two formats it was by selected 48% (ordered group) and 40% (unordered group). Such results reinforce the idea that a composite measure may

enhance the utility of hospital quality data for consumers.

3b/3c. Relation to other NQF-endorsed measures
Identify similar or related NQF-endorsed measures to components and/or composite

3b.1 NQF # and Title of similar or related measures:

All components of this composite measure are NQF-endorsed. However there are currently no NQF-endorsed composite measures that provide a single indication of a hospital's quality of care for SCIP patients. In that they also serve to provide a single, consumer-friendly indication of a hospital's quality of care as it relates to either patient safety or mortality for selected conditions, the proposed measure is similar in intent to:

1. NQF #0531 Patient Safety for Selected Indicators (AHRQ) Endorsed June 19, 2009
2. NQF #0530 Mortality for Selected Conditions (AHRQ) Endorsed June 19, 2009

However, the proposed measure is topic-specific and intended to summarize the measures on Hospital Compare, thus it provides unique and additive value above and beyond these measures.

(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**

3b. Harmonization
3b.2 Are the component measure specifications harmonized, or if not, why?

The component measures are harmonized; they are all reported as percents.

3b
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3c. Distinctive or Additive Value
3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:

The proposed composite measure offers a topic-specific summary of the inpatient quality measures that CMS has adopted for its Hospital Inpatient Quality Reporting Program, related to the quality of care for SCIP patients.

5.1 Competing Measures If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), describe why it is a more valid or efficient way to measure quality:

There are no currently endorsed composite measures on this topic or population.

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3d. Decomposition of Composite
3d.1 Describe the information that is available from decomposing the composite into its components:

The component measures include the following information:

1. Percent of surgery patients on beta-blocker therapy prior to arrival who received a beta blocker during the perioperative period
2. Percent of surgery patients given an antibiotic at the right time (within one hour to before surgery) to help prevent infection
3. Percent of surgery patients given the right kind of antibiotic to help prevent infection
4. Percent of surgery patients given preventive antibiotics that were stopped at the right time (within 24 hours after surgery)
5. Percent of surgery patients needing hair removed from the surgical area before surgery, who had hair removed using a safer method (electric clippers or hair removal cream - not a razor)
6. Percent of surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries
7. Percent of surgery patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery
8. Percent of surgical patients with urinary catheter removed on postoperative day 1 or

3d
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postoperative day 2 with day of surgery being day zero.	
3e. Achieved stated purpose **3e.1 Describe how the scores from testing or use reported in 2f demonstrate that the composite achieves the stated purpose:** The scores demonstrate a range of performance on the SCIP process-of-care quality measures. Testing of composite scores identified hospitals that perform significantly above and below the national mean of these scores. The scores thus reflect the underlying hospital performance regarding the CMS quality measures for SCIP, achieving the purpose of the composite.	**3e** **C**☐ **P**☐ **M**☐ **N**☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** **C**☐ **P**☐ **M**☐ **N**☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (composite measure evaluation criteria)	**Eval**
4a. Data Generated as a Byproduct of Care Processes **4a.1 How are all the data elements that are needed to compute measure scores generated?** (*Check all that apply)* ☐ Data are generated as a byproduct of care processes during care delivery (*Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition)* ☒ Coding/abstraction performed by someone other than person obtaining original information *(e.g., DRG, ICD-9 codes on claims; chart abstraction for quality measure, registry)* ☐ Survey ☐ Other *(e.g., patient experience of care surveys, provider surveys, observation), Please describe*:	**4a** **C**☐ **P**☐ **M**☐ **N**☐
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) ☒ Yes ☐ No **4b.2 If no, specify the near-term path to achieve electronic capture by most providers.** N/A ***Note: Measure stewards will be asked to specify the data elements for electronic health records at a later date***	**4b** **C**☐ **P**☐ **M**☐ **N**☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences **4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.** Our measures are not susceptible to inaccuracies, errors, or unintended consequences; the component outcomes are well-specified in hospital administrative data.	**4d** **C**☐ **P**☐ **M**☐ **N**☐
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the composite/component measures regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** All process-of-care component measures are reported as part of the Hospital Inpatient Quality Reporting Program in order for hospitals to receive the full annual Medicare payment update. Hospitals therefore have a	**4e** **C**☐ **P**☐ **M**☐ **N**☐

strong financial incentive to provide process-of-care indicators. Continued availability of component measures for the SCIP composite is therefore assured.

4.2 **Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:**

The composite measure is calculated from process-of-care measures that are already publicly reported by hospitals. Hospitals and providers should not experience any additional costs or burden from the calculation of this measure.

4e.3 **Evidence for costs:** N/A
4e.4 **Business case documentation:** N/A

If the component measures are combined at the patient level, complete 4c.

4c. Exclusions
4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** ☐ No ☐ Yes ►**If yes, provide justification**

4c
H☐ M☐ L☐ N☐ NA☐

TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*

4

Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met?
Rationale:

4
C☐ P☐ M☐ N☐

RECOMMENDATION

Steering Committee: Do you recommend for endorsement?
Comments:

Y☐ N☐ A☐

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Co.6 **List any additional organizations that sponsored/participated in measure development:**

ADDITIONAL INFORMATION

Ad.1 **Workgroup/Expert Panel involved in measure development**
Provide a list of workgroup/panel member names and organizations. Describe the group's role in measure development.

On October 20, 2009, CMS convened an Advisory Panel on Medicare Education (APME) that included healthcare

professionals involved with communication of quality information to consumers. CMS provided this panel with an overview of plans to include new composite measures on the Hospital Compare website, and solicited feedback from the group. In general, the group was supportive of CMS' plans to pursue composites and encouraged further development in this area.

APME Panel Members

- Gwendolyn T. Bronson, SHINE/SHIP Counselor, Massachusetts SHINE Program
- Yanira Cruz, Ph.D., President and Chief Executive Officer, National Hispanic Council on Aging
- Nan-Kirsten Forté, Executive Vice President, Consumer Services, WebMD
- Cathy C. Graeff, R.Ph., M.B.A., Partner, Sonora Advisory Group
- Carmen R. Green, M.D., Professor, Anesthesiology and Associate Professor, Health, Management, and Policy, University of Michigan
- Jessie C. Gruman, Ph.D., President, Center for Advancing Health
- Cindy Hounsell, J.D., President, Women's Institute for a Secure Retirement
- Gail Hunt, President and Chief Executive Officer, National Alliance for Caregiving
- Deeanna Jang, Policy Director, Asian and Pacific Islander American Health Forum
- Andrew Kramer, M.D., Professor of Medicine, Division of Health Care Policy and Research, University of Colorado, Denver
- Sandy Markwood, Chief Executive Officer, National Association of Area Agencies on Aging
- David W. Roberts, M.P.A., Vice President, Government Relations, Healthcare Information and Management System Society
- Julie Bodën Schmidt, M.S., Associate Vice President, Training and Technical Assistance, National Association of Community Health Centers
- Rebecca P. Snead, Chief Executive Officer and Executive Vice President, National Alliance of State Pharmacy Associations and APME Chair

In 2006, CMS partnered with the Hospital Quality Alliance (HQA) in order to explore and assess strategies for improving the consumer friendliness of the Hospital Compare website. Staff representing the HQA principal organizations, which include the American Hospital Association, the Federation of American Hospitals, and the Association of American Medical Colleges, convened a working group charged with determining how to make Hospital Compare more consumer friendly over the short and long term. One of the key long-term recommendations from this group was to direct CMS/HQA to create condition- or procedure-specific composites related to current measures on Hospital Compare. Indeed, the group noted that such summary measures may help condense a large volume of information into a smaller, more manageable amount that is easier for decision-making.

Ad.2 If adapted, name of original measure: N/A
Ad.3 If adapted, original specifications ☐ **attachment or Ad.4 web page URL:**

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released: N/A
Ad.7 Month and Year of most recent revision: N/A
Ad.8 What is the frequency for review/update of this measure? Annually
Ad.9 When is the next scheduled review/update for this measure? 2012

Ad.10 Copyright statement/disclaimers:

Ad.11 Additional Information ☐ **attachment or web page URL:**

I have checked that the submission is complete and all the information needed to evaluate the measure is provided in the form; any blank fields indicate that no information is provided. ☒

Date of Submission (*MM/DD/YY*)**: Initial:** 12/13/10 **Resubmission:** 3/28/11

The National Quality Forum
Composite Measure of Hospital Quality for Indicators Related to the Surgical Care Improvement Project

Appendix A
Technical Supplement

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March 2011

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SECTION 1
BACKGROUND

1.1 Overview

The composite measure of quality of hospital care for SCIP aims to be a comprehensive indicator of hospital performance that will be of special value to consumers as a summary means of evaluating alternative hospitals. The quality construct is thus formative in nature. At present, CMS publishes eight individual process-of-care indicators meant to capture the quality of hospital care provided to patients who undergo surgery.

CMS developed the composite measure to achieve the following goals for reporting hospital quality measures composite methodology:

- Summarize measures on Hospital Compare in a single, useful, condition-specific composite
- Produce composite values that show differences in hospital performance that are clinically and statistically meaningful and reflect true underlying differences in quality
- Enable the calculation of results for most hospitals
- Employ a method that accommodates changes in the set of measures on Hospital Compare and can be used for multiple conditions
- Employ a method that is relatively simple, so hospitals can duplicate results

These goals can be achieved by a method that is consistent with that of other widely used composites; in this case the method used for the Agency for Healthcare Research and Quality (AHRQ) composites. The National Quality Forum (NQF) has endorsed those composites and CMS, states, and other organizations use them widely.

In the development of this composite, certain methodological decisions were made to satisfy the policy goals outlined above. First, we entered individual measures as values, rather than ranks, to reduce the likelihood that very small differences in absolute performance lead to large differences in ranking composite scores. Second, we adjusted individual measures for reliability, a process that leads to a more accurate measure of true underlying performance and avoids extreme values for small hospitals due to random variation. Lastly, we used denominator weighting so that the composite places more weight on measures that are reported for relatively more patients nationally. In Table 1d.2.1, we present the mapping between CMS' policy goals and methodological decisions in tabular form.

Table 1d.2.1. CMS Policy Goals for Composite Measures and Associated Methodological Decisions

Policy Goals	**Methodological Decisions**
Summarize measures on Hospital Compare in a single, useful, condition-specific composite	• Include the same set of process-of-care measures as Hospital Compare
Produce differences in composite values that are clinically and statistically meaningful and reflect true differences in underlying quality	• Enter component measures as values, not ranks, so that slight differences in measured performance do not potentially lead to large differences in the composite value for topped-off measures • Adjust component measures for reliability so that random variation does not drive small hospitals to extremes
Results available for a large number of hospitals	• Process measures are available when the number of eligible discharges is five or more
Focus more on measures relevant to more patients	• Construct composites using weights based on national denominators
Method is scientifically acceptable and acceptable to consumers and other stakeholders	• Adopt an approach that is similar to that used for AHRQ quality indicators (QIs) *Note: AHRQ QIs are NQF-endorsed and widely reported*
Method accommodates changes in the set of measures on Hospital Compare	• Method is based on general principles, not on the specific statistical performance of a group of measures • Process indicators are statistically standardized before they are added together
Method can be used for multiple conditions	
Method is relatively simple Hospitals can duplicate results	• Reliability weights are a function of a hospital's number of cases and national parameters

SECTION 2
METHOD OF SCORING AND AGGREGATION

2.1 Estimation of the Composite Measure

We estimate the composite measure using an approach that we have termed Absolute Score Index with Reliability Weighting (ASI-RW). To compute the ASI-RW, we used eight process-of-care indicators related to the Surgical Care Improvement Project (SCIP). All of these indicators are publically reported by the CMS on *Hospital Compare* and NQF endorsed.

To construct the composite, the process-of-care indicators were set equal to the weighted average of the hospital's own mean for the indicator and the national mean for the indicator (that is, reliability-weight adjusted). More information regarding the reliability-weight adjustment is available in Section 2.2. Then, each indicator was standardized by dividing by the national mean of the indicator.

Consistent with the approach used for the AHRQ measures, CMS used denominator weighting in constructing the composite. Denominator weighting places relatively more weight on measures that apply to relatively more patients nationally. More specifically, the composite for hospital j = 1,…, J can be described as a denominator weighted average of a standardized reliability-weight adjusted process-of-care indicator k=1,…K,

(eq. 2.1.1)

where is the national rate of a process-of-care indicator and is the total number of cases for a process-of-care indicator at hospital j.

2.2 Estimation of Reliability-Weight-Adjusted Measures

For each process-of-care indicator, the reliability-weight-adjusted indicator is equal to a weighted average of the hospital's own measure and the national mean value of the measure. In each case, the weight is a measure of the precision with which a hospital's measure has been estimated. This weighted average has been shown to be more accurate, on average, than using each hospital's individual value for the measure.

The weight is made up of two parts—the variability of the measure within each hospital, termed the "within variance" or "noise variance," and the variability across hospitals, known as the "signal variance." The weight attached to each hospital's own value for process measure k is equal to the ratio of the signal variance to the sum of the signal variance and the noise variance. As the number of observations for a hospital (n_{jk}) increases, the weight approaches one.

First, let:

	Signal variance
	Within variance
	Hospital-specific rate for process-of-care indicator *k*
	National rate for process-of-care indicator *k*
	Total number of cases in hospital j for indicator *k*
	Total number of hospitals for indicator *k*
$k = 1,\ldots K$	Process-of-care indicator
$j = 1,\ldots, J$	Hospital index

Then the reliability-weight adjusted estimator (is

(eq. 2.2.1)

where is the reliability-weight:

(eq. 2.2.2)

is the signal variance:

(eq. 2.2.3)

and is the within variance:

(eq. 2.2.4)

SECTION 3
PERFORMANCE DISCRIMINATION

3.1 Method for Discriminating Performance

To examine meaningful differences in composite measures among hospitals, for the purpose of internal analysis, we compared hospitals' confidence interval estimates with the overall mean and assigned hospitals into one of three performance categories: better than hospitals, if the interval estimate is entirely above the mean; no different than hospitals, if the interval estimate includes the mean; and worse than hospitals, if the interval estimate is entirely below the mean. These categories were used for illustrative analyses only and should not be assumed to be the manner in which these composites will be publicly reported.

The hospital-specific standard error is estimated by computing the variance of the composite measure and computing a square root of the variance. After we derive the standard errors for each hospital, we estimate an interval estimate around each hospital's mean composite measure. The interval estimate is a range of probable values for the composite measure that characterizes the amount of uncertainty associated with the estimate. We apply a 95 percent interval estimate, which indicates a 95 percent confidence level that the true composite measure is between the lower and upper limits of the interval.

More specifically, the standard error for a specific hospital is calculated as follows. First, we let:

	Hospital-specific reliability-weight-adjusted rate for process-of-care indicator *k*
	Total number of cases in hospital j for indicator *k*
	Total number of hospitals for indicator *k*
	Mean of process domain composite
	Standard deviation of process domain composite
$k = 1,\ldots K$	Process-of-care indicator
$j = 1,\ldots,J$	Hospital index

The hospital's composite score ( ) is estimated as a denominator weighted average of the standardized reliability-weight-adjusted process-of-care indicator rates:

(eq. 2.3.1)

Therefore, the variance of the composite measure can be estimated as

(eq. 2.3.2)

given the following assumptions:

A1. , and , are constants

A2. cov(,) = 0

A3. cov(,) = 0

A4. cov(,) = 0

SECTION 4
RESULTS

4.1 Results for Section 2k.3

Table 2k.3.1. Comparison of Distribution of SCIP Composite Measure by Weighting Method

Percentile	Equal Weighting	Differential Weighting
Min	0.70	0.64
1%	0.85	0.87
5%	0.92	0.94
10%	0.94	0.96
25%	0.98	0.99
50%	1.01	1.01
75%	1.03	1.02
90%	1.05	1.03
95%	1.05	1.04
99%	1.06	1.04
Max	1.07	1.05
Mean	1.00	1.00
N	2,837	2,837

4.2 Results for Section 2k.5

Table 2k.3.5. Comparison of Distribution of SCIP Composite Measure by Scoring Method

Percentile	Absolute Scoring Index with Reliability Weights	Absolute Scoring Index with Reliability Weights (Alternative Version)
Min	0.64	26.56
1%	0.87	70.76
5%	0.94	83.48
10%	0.96	87.98
25%	0.99	92.86
50%	1.01	95.67
75%	1.02	97.22
90%	1.03	98.27
95%	1.04	98.75
99%	1.04	99.45
Max	1.05	99.94
Mean	1.00	94.00
N	2,837	3,615

4.3 Results for Section 2l.3

Table 2l.3.1 Comparison of Process-of-Care Measures for All Hospitals and those Included in the Composite Score

	CARD2*		INF1*		INF2*		INF3*		INF6*		INF9*		VTE1*		VTE2*	
Percentile	All Hospitals	Included Hospitals	All Hospitals	Included Hospitals	All Hospitals	Included Hospitals	All Hospitals	Included Hospitals	All Hospitals	Included Hospitals	All Hospitals	Included Hospitals	All Hospitals	Included Hospitals	All Hospitals	Included Hospitals
Min	0.00	0.00	0.00	3.00	0.00	43.00	0.00	3.00	0.00	19.00	0.00	0.00	0.00	9.00	0.00	13.00
1%	0.00	48.00	22.00	74.00	33.00	82.00	43.00	68.00	67.00	89.00	0.00	38.00	8.00	64.00	14.00	60.00
5%	56.00	71.00	74.00	88.00	84.00	92.00	75.00	81.00	94.00	97.00	50.00	60.00	60.00	78.00	60.00	76.00
10%	73.00	79.00	86.00	91.00	91.00	94.00	83.00	86.00	98.00	98.00	67.00	70.00	76.00	84.00	75.00	81.00
25%	86.00	88.00	94.00	95.00	96.00	96.00	91.00	91.00	99.00	99.00	81.00	82.00	88.00	90.00	86.00	87.00
50%	93.00	93.00	97.00	97.00	98.00	98.00	95.00	95.00	100.00	100.00	91.00	90.00	95.00	95.00	93.00	93.00
75%	98.00	97.00	99.00	99.00	99.00	99.00	98.00	97.00	100.00	100.00	99.00	97.00	98.00	98.00	97.00	97.00
90%	100.00	100.00	100.00	99.00	100.00	99.00	100.00	99.00	100.00	100.00	100.00	100.00	100.00	99.00	100.00	99.00
95%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
99%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Max	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mean	88.33	90.50	93.26	95.82	95.19	96.96	91.97	93.12	98.36	99.24	85.81	87.08	89.69	92.73	88.32	90.97
N	3,395	2,837	3,683	2,837	3,682	2,837	3,674	2,837	3,704	2,837	3,398	2,837	3,631	2,837	3,627	2,837

Notes:

* **CARD2:** Surgery patients who were taking heart drugs called beta blockers before coming to the hospital, who were kept on the beta blockers during the period just before and after their surgery; **INF1:** Surgery patients who were given an antibiotic at the right time (within one hour before surgery) to help prevent infection; **INF2:** Surgery patients who were given the right kind of antibiotic to help prevent infection; **INF3:** Surgery patients whose preventive antibiotics were stopped at the right time (within 24 hours after surgery); **INF6:** Surgery patients needing hair removed from the surgical area before surgery, who had hair removed using a safer method (electric clippers or hair removal cream – not a razor); **INF9:** Percent of surgery patients whose urinary catheters were removed on the first or second day after surgery; **VTE1:** Surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries; **VTE2:** Patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery.

4.4 Results for Section 2h.2

Table 2h.2.1. Comparison of Distribution of Composite Measure, by Bed Size

	Bed Size			
Percentile	0-49	50-199	200-399	400+
Min	0.79	0.75	0.82	0.82
1%	0.85	0.87	0.92	0.92
5%	0.91	0.93	0.95	0.95
10%	0.94	0.95	0.97	0.97
25%	0.98	0.98	0.99	0.99
50%	1.01	1.01	1.01	1.01
75%	1.02	1.02	1.02	1.02
90%	1.03	1.03	1.03	1.03
95%	1.03	1.04	1.04	1.04
99%	1.04	1.04	1.05	1.04
Max	1.04	1.05	1.05	1.05
Mean	0.99	1.00	1.01	1.00
N	238	1,211	856	434

Note: Analysis restricted to hospitals where there was information available in the American Hospital Association data files

Table 2h.2.2. Comparison of Distribution of Composite Measure, by Ownership Type

	Ownership		
Percentile	Government	Not for Profit	For Profit
Min	0.79	0.75	0.82
1%	0.86	0.89	0.88
5%	0.90	0.94	0.94
10%	0.93	0.96	0.97
25%	0.97	0.99	1.00
50%	1.00	1.01	1.01
75%	1.01	1.02	1.03
90%	1.02	1.03	1.04
95%	1.03	1.04	1.04
99%	1.04	1.04	1.05
Max	1.04	1.05	1.05
Mean	0.99	1.00	1.01
N	385	1,842	512

Note: Analysis restricted to hospitals where there was information available in the American Hospital Association data files.

Table 2h.2.3. Comparison of Distribution of Composite Measure, by Teaching Hospital Status

	Teaching Hospital	
Percentile	Yes	No
Min	0.92	0.75
1%	0.92	0.87
5%	0.96	0.94
10%	0.98	0.96
25%	1.00	0.99
50%	1.01	1.01
75%	1.02	1.02
90%	1.03	1.03
95%	1.04	1.04
99%	1.04	1.04
Max	1.04	1.05
Mean	1.01	1.00
N	267	2,472

Note: Analysis restricted to hospitals where there was information available in the American Hospital Association data files

Table 2h.2.4. Comparison of Distribution of Composite Measure, by Census Region

	Census Region			
Percentile	Northeast	South	Midwest	West
Min	0.88	0.75	0.77	0.79
1%	0.92	0.89	0.87	0.86
5%	0.96	0.94	0.95	0.91
10%	0.98	0.96	0.97	0.95
25%	1.00	0.99	0.99	0.98
50%	1.01	1.01	1.01	1.00
75%	1.02	1.02	1.02	1.02
90%	1.03	1.03	1.03	1.03
95%	1.04	1.04	1.03	1.04
99%	1.04	1.05	1.04	1.04
Max	1.05	1.05	1.05	1.05
Mean	1.01	1.00	1.00	0.99
N	477	1,015	695	542

Note: Analysis restricted to hospitals where there was information available in the American Hospital Association data files

Table 2h.2.5. Comparison of Distribution of Composite Measure, by Percentage of Patients that are Black

	Percentage of Black Patients			
Percentile	0	>0 and ≤15	>15 and ≤30	>30
Min	0.64	0.79	0.83	0.75
1%	0.85	0.89	0.89	0.82
5%	0.91	0.94	0.94	0.92
10%	0.95	0.96	0.96	0.94
25%	0.98	0.99	0.99	0.98
50%	1.01	1.01	1.01	1.01
75%	1.02	1.02	1.02	1.02
90%	1.03	1.03	1.03	1.03
95%	1.03	1.04	1.04	1.04
99%	1.04	1.04	1.04	1.04
Max	1.04	1.05	1.05	1.05
Mean	0.99	1.00	1.00	0.99
N	346	1,624	410	457

***** Note: The percentage of patients that are black is estimated using claims data available from CMS

The National Quality Forum
Composite Measure of Hospital Quality for Indicators Related to the Surgical Care Improvement Project

Appendix B

Submitted By:

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Prepared for:
Centers for Medicare and Medicaid Services

March 2011

BACKGROUND

Composite measures are used in many contexts or settings to provide a broad picture of the performance, behavior, traits and other characteristics of individuals or other types of entities. In general, composite measures combine quantitatively two or more separate measures into a single measure or index. Within health care, a composite measure can be formed by combining quantitatively the performance data of providers across multiple measures.

Such composite measures of provider performance serve two primary goals. First it summarizes a large amount of information about the performance of a provider. This type of summary can be useful for giving consumers provider-related performance information. Much research has shown that consumers find it difficult and frustrating to sort through multiple performance measures to arrive at a conclusion regarding the performance of a provider from whom they are contemplating receiving care (Hibbard et al., 2000; Hibbard, 2001). Thus composites are a potentially useful tool for sponsors of consumer report cards and other types of vehicles for disseminating information about provider performance to consumers. Providers also may benefit when their performance information is presented in a summary form if the summary offers insight about opportunities for improvement.

Second, it increases measurement reliability for providers. As provider profiling and consumer report cards have become widely used, researchers have raised concerns about the reliability of performance measurement. Studies have demonstrated that measurement reliability is often below acceptable levels because of small sample sizes for providers (Zaslavsky, 2001). The construction of composites may be used to address this problem by combining, for a given provider, the number of patients across the multiple measures.

With respect to the information summarized, composites for healthcare measures are likely to comprise process measures, outcome measures or some combination of the two. Although in the field of health services research, process measures are sometimes treated as an intermediate measure for outcomes within conceptual models of quality of care, there is no consensus that process measures are not important in their own right for assessing quality of care. First, it is not clear that process scores consistently correspond with outcomes as studies examining the statistical correlations between process and outcome measures often report mixed results. In addition, more recent studies using sophisticated measurement techniques seem to indicate that they are not related strongly (e.g. Jha et al., 2007; Ryan et al., 2009). Second, for quality improvement, processes always are much more under the control of providers than are outcomes as they offer guidance as to what actions provider can undertake to improve scores. As such, many providers appear to value process measures for purposes of quality assessment.

There are two general approaches for constructing composites (Shwartz et al., 2009). One approach is to construct “reflective” composites. A reflective composite seeks to combine multiple measures that theoretically are believed to be linked to an underlying construct that cannot be directly measured such as quality or intelligence. The construction of a reflective construct requires that the individual measures be highly correlated as they are treated theoretically as representing different dimensions of the same construct. The other approach is to construct “formative” composites. A formative composite is essentially a combination of

multiple measures that are intended to provide useful summary information but without a strong theoretical rationale that they are linked to the same construct. As such, there is no expectation that the individual measures comprising the composite will be highly correlated or meet other psychometric tests that are considered standard for the construction of a valid reflective composite. In particular, then, reflective measures may gain validity and reliability by summarizing information from individual indicators in a condensed form. Such a result may or may not hold for particular formative measures.

CMS HOSPITAL COMPARE COMPOSITES

CMS has developed composite measures for four conditions that are part of the accepted set of measures from the CMS Hospital Compare system: Acute Myocardial Infarction (AMI), Heart Failure (HF), Pneumonia (PN), and Surgical Care Improvement Project (SCIP). For three of these four conditions (i.e., AMI, HF, and PN), both process and outcome measures are available for constructing composites. For SCIP, process measures are available only. For constructing the composites, the process and outcome measures were treated as separate domains. All the measures comprising the composites have previously been reviewed and endorsed by the National Quality Forum (NQF). Because CMS plans to include these composite measures in the Hospital Compare website, which is a consumer-oriented tool for comparing provider performance, a primary goal is to summarize information in a way that will be helpful to consumers.

The construction of these composites was conducted in manner that is consistent with a formative approach. There are several considerations that are relevant to this decision. First, the process by which the measures comprising each composite evolved and were chosen for Hospital Compare did not take place with a reflective construct in mind. The measures were developed, evaluated, and considered for NQF endorsement separately, each on their own merits. Thus, we consider these constructs formative in that they summarize an array of measures for that condition. Second, each of the four conditions is complex in etiology and treatment, so that it is difficult or even impossible to condense the measures into simple and valid conceptual constructs as would be seen in reflective composites. Yet, the decisions from a patient, provider, and healthcare system level on evaluating quality for individual treatment conditions need to be made. We cannot pick and choose to take the treatment of one hospital for one measure and another hospital for another measure; the treatment comes as a package. Third, composites are intended to be flexible for future additions or deletions of measures. CMS policy on the appropriate measures for these conditions and possibilities for additional conditions will adapt to measure development opportunities and changes in the evidence base underlying both process and outcome measures over time. Finally, the process and outcome measures themselves have different theoretical constructs, are affected differently by the actions of providers, and may not be causally related to each other. As such, for each of these four conditions now, and for any new conditions that are added, formative composites can be developed following the technical procedures that have been outlined in the initial NQF submissions for each of these composites.

A key technical decision as to the construction of the composites was to weight the process and outcome domains equally by standardizing each domain score, before combining into a single

composite score. The decision to weight equally was based on the consideration that no strong theoretical foundation existed for assigning differential weights. In this sense, the rationale is similar to the decision to construct the composites as a formative measure. Since the measures are not necessarily drawn from a consistent unifying underlying construct, there may not really be a population standard deviation for each measure to be estimating by the sample standard deviation. Also, for true equal weighting to be achieved, standardization of the domain scores is necessary. This is because the impact of any measure on a composite with equal weighting will be proportional to the standard deviation of the underlying measure. Measures which vary more will have greater influence on the composite measure and the ranking of entities measured. Z-score methods to normalize measures to mean 0 and standard deviation of 1 are possible to equalize the influence across all measures, but this is undesirable since it greatly inflates the influence of measures with very small standard deviation measured differences that likely have little to no clinical or practical significance. In fact, for practical implementation of a composite measure where expert opinion is not being brought to bear on weighting, equal weighting where the standard deviation impact is allowed to pass through to the composite measure actually is more acceptable.

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