# 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 |
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| **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<br>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<br>De.5 **IOM Quality Domain**: Safety<br>De.6 **Consumer Care Need:** Staying healthy |

| CONDITIONS FOR CONSIDERATION BY NQF | |
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| 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.*<br>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<br>A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:**<br>A.3 **Measure Steward Agreement:** Government entity and in the public domain - no agreement necessary<br>A.4 **Measure Steward Agreement attached:** | **A**<br>Y☒<br>N☐ |

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| **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.<br>►**Purpose:** Public reporting, Internal quality improvement<br>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.<br>D.1**Testing:** Yes, fully developed and tested<br>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?**<br>**Staff Notes to Steward** (*if submission returned*)**:** | **Met** Y☒ N☐ |
| **Staff Notes to Reviewers** (*issues or questions regarding any criteria*)**:** 1) Developer notes that evidence citations are current. 2) Measure-specific data elements that are missing data cause the record to be rejected if any measure algorithm results in a Measure Category Assignment equals "X" (missing data). Per developer, rejected data must be corrected and resubmitted by the facility before the transmission deadline in order for it to be accepted by the warehouse. 3) 2a.9: Consider denominator exclusions in terms of appropriateness. 4) Consider performance rate overall and for subpopulations (range = 88.7% in Hispanic pop. - 93.5% for caucasions; rate in US Territories- 67.6%) 5) SC may want to ask developers about how potential modification of specifications every 6 months is communicated to NQF and to stakeholders and how it is expected to affect performance rates quarter to quarter. | |
| **Staff Reviewer Name(s):** Melinda Murphy | |

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| **TAP/Workgroup Reviewer Name:** NA | |
| **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)<br>**1a. High Impact** | **Eval Rating** |
| (for NQF staff use) **Specific NPP goal**: Safety - reduction/elimination of HAIs | |
| 1a.1 **Demonstrated High Impact Aspect of Healthcare:** Affects large numbers, Frequently performed procedure, Patient/societal consequences of poor quality<br>1a.2<br><br>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.<br><br>1a.4 **Citations for Evidence of High Impact:** Selected References: | **1a** C☐ P☐ M☐ N☐ |

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.

**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.

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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*)**:** 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

**1c**
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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:** 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?** | **1 Y☐ N☐**
**Rationale:**

## 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*

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*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
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

2d C☐ P☐ M☐

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| Technical Expert Panel as needed.<br><br>**2d.2 Citations for Evidence:**<br>NA<br><br>**2d.3 Data/sample** *(description of data/sample and size)*: NA<br><br>**2d.4 Analytic Method** *(type analysis & rationale)*:<br>NA<br><br>**2d.5 Testing Results** *(e.g., frequency, variability, sensitivity analyses)*:<br>NA | N☐<br>NA<br>☐ |
| **2e. Risk Adjustment for Outcomes/ Resource Use Measures**<br><br>**2e.1 Data/sample** *(description of data/sample and size)*: NA<br><br>**2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*:<br>NA<br><br>**2e.3 Testing Results** *(risk model performance metrics)*:<br>NA<br><br>**2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:** This is a process measure. | **2e**<br>C☐<br>P☐<br>M☐<br>N☐<br>NA<br>☐ |
| **2f. Identification of Meaningful Differences in Performance**<br><br>**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.<br><br>**2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*:<br>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.<br><br>**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)*:<br>A trends report is provided with this submission. | **2f**<br>C☐<br>P☐<br>M☐<br>N☐ |
| **2g. Comparability of Multiple Data Sources/Methods**<br><br>**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.<br><br>**2g.2 Analytic Method** *(type of analysis & rationale)*:<br>NA<br><br>**2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*:<br>NA | **2g**<br>C☐<br>P☐<br>M☐<br>N☐<br>NA<br>☐ |
| **2h. Disparities in Care**<br><br>**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 | **2h**<br>C☐<br>P☐<br>M☐ |

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| for the hospital process measures was provided also.<br><br>**2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**<br>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. | **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?**<br>**Rationale:** | ***2***<br>**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**<br><br>**3a.1 Current Use:** In use<br><br>**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*)**:**<br>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.<br>http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier1&cid=1121785350606<br><br>**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***):**<br>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.<br><br>**Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*)<br>**3a.4 Data/sample** *(description of data/sample and size)***:** The measures rates are reported on the website Hospital Compare.<br><br>**3a.5 Methods** *(e.g., focus group, survey, QI project)***:**<br>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.<br><br>**3a.6 Results** *(qualitative and/or quantitative results and conclusions)***:**<br>NA | **3a C☐ P☐ M☐ N☐** |
| **3b/3c. Relation to other NQF-endorsed measures**<br><br>**3b.1 NQF # and Title of similar or related measures:**<br>#527 and #528 | |
| (for NQF staff use) **Notes on similar/related endorsed or submitted measures:** | |
| **3b. Harmonization**<br>If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target | **3b C☐** |

| | |
|---|---|
| population/setting/data source or different topic but same target population):<br>**3b.2 Are the measure specifications harmonized? If not, why?**<br>Yes, many of the same data elements are used, as this measure is part of the SCIP set. | P☐<br>M☐<br>N☐<br>NA<br>☐ |
| **3c. Distinctive or Additive Value**<br>**3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:**<br>The antibiotic prophylaxis measures are collected as a set.<br><br>**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:**<br>NA | **3c**<br>C☐<br>P☐<br>M☐<br>N☐<br>NA<br>☐ |
| **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?**<br>**Rationale:** | **3**<br>C☐<br>P☐<br>M☐<br>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**<br><br>**4a.1-2 How are the data elements that are needed to compute measure scores generated?**<br>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**<br>C☐<br>P☐<br>M☐<br>N☐ |
| **4b. Electronic Sources**<br><br>**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*)<br>No<br><br>**4b.2 If not, specify the near-term path to achieve electronic capture by most providers.**<br>This measure has been retooled for EHRs but has not been tested. | **4b**<br>C☐<br>P☐<br>M☐<br>N☐ |
| **4c. Exclusions**<br><br>**4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?**<br>No<br><br>**4c.2 If yes, provide justification.** | **4c**<br>C☐<br>P☐<br>M☐<br>N☐<br>NA<br>☐ |
| **4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences**<br><br>**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.**<br>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**<br>C☐<br>P☐<br>M☐<br>N☐ |
| **4e. Data Collection Strategy/Implementation** | **4e**<br>C☐ |

| | |
|---|---|
| **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:**<br>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.<br><br>**4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:**<br>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.<br><br>**4e.3 Evidence for costs:**<br>No studies have been performed on the cost of implementation.<br><br>**4e.4 Business case documentation:** NA | **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?**<br>**Rationale:** | **4**<br>**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?**<br>**Comments:** | **Y☐ N☐ A☐** |
| **CONTACT INFORMATION** | |
| **Co.1 Measure Steward (Intellectual Property Owner)**<br>**Co.1 Organization**<br>Centers for Medicare & Medicaid Services, 7500 Security Boulevard , Mail Stop S3-01-02, Baltimore, Maryland, 21244-1850<br><br>**Co.2 Point of Contact**<br>Kristie, Baus, MS, RN, kristie.baus@cms.hhs.gov, 410-786-8161- | |
| **Measure Developer If different from Measure Steward**<br>**Co.3 Organization**<br>Centers for Medicare & Medicaid Services, 7500 Security Boulevard, Mail Stop S3-01-02, Baltimore, Maryland, 21244-1850<br><br>**Co.4 Point of Contact**<br>Kristie, Baus, MS, RN, kristie.baus@cms.hhs.gov, 410-786-8161- | |
| **Co.5 Submitter If different from Measure Steward POC**<br>Wanda, Johnson, RN, wjohnson@ofmq.com, 405-302-3278-, Oklahoma Foundation for Medical Quality | |
| **Co.6 Additional organizations that sponsored/participated in measure development**<br>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.**<br>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:**<br>**Ad.3-5 If adapted, provide original specifications URL or attachment** |
| **Measure Developer/Steward Updates and Ongoing Maintenance**<br>**Ad.6 Year the measure was first released:** 2001<br>**Ad.7 Month and Year of most recent revision:** 10, 2010<br>**Ad.8 What is your frequency for review/update of this measure?** Every 6 months<br>**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)<br>Q209<br>BM: 99.3 Rate: 92.9<br>Q309<br>BM: 99.4 Rate 93.5<br>Q409<br>BM: 99.5 Rate 94.2<br>Q110<br>BM: 99.6 Rate 94.8<br>Q210<br>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