NATIONAL QUALITY FORUM

Measure Evaluation 4.1
December 2009

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

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

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

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

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

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

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

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

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

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

1a.4 Citations for Evidence of High Impact:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1b. Opportunity for Improvement

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

1b.2 **Summary of data demonstrating performance gap (variation or overall poor performance) across providers:**
Although data for 671 ASCs are included in the ASC Quality Collaboration (ASC QC) database for this measure, many report at the corporate level and do not report data for individual ASCs. The ASC QC database includes center-level rates for this measure for 349 ASCs throughout the US. The rates for this measure are based on the 349 individually-reporting ambulatory surgery centers, located throughout the US. The rate for timely administration of a pre-operative antibiotic ranged from a minimum of 0.2% to a maximum of 100%. The mean rate was 96% (SD: 14.6%), while the median rate was 100%. The minimum compliance rate of 0.2% demonstrates that there is a significant opportunity for improvement in this measure.

1b.3 **Citations for data on performance gap:**
Although data for 671 ASCs are included in the ASC QC database, many report at the corporate level and do not report data for individual ASCs. The ASC QC database includes center-level rates for this measure for 349 ASCs throughout the US. The 349 individually-reporting ambulatory surgery centers represent a convenience sample that may be used to assess the opportunity for improvement for this measure. The centers were located throughout the US. Data collected for second calendar quarter of 2010 were included in this portion of the study.

1b.4 **Summary of Data on disparities by population group:**
This measure is currently collected at the ASC-level or at the level of the corporate parent of the ASC. Disparity measures by population group require the collection of patient-level data or collection of the data for individual populations of patients. The ASC QC is investigating a number of strategies that will make this type of data available and hopes to add this component in the near future.

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

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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*)**:** Evidence suggests improving the rate of timely administration of intravenous prophylactic antibiotics can be expected to reduce the risk of surgical site infection.

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

1c.4 **Summary of Evidence** (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**

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Evidence suggests improving the rate of timely administration of intravenous prophylactic antibiotics can be expected to reduce the risk of surgical site infection.

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

1c.6 **Method for rating evidence:** Adapted from the Canadian Task Force on the Periodic Health Examination.
Strength of recommendation:
A Good evidence to support a recommendation for use
B Moderate evidence to support a recommendation for use
C Poor evidence to support a recommendation
Quality of evidence:
I Evidence from > or = 1 properly randomized, controlled trial
II Evidence from > or = 1 well-designed clinical trial, without randomization; from cohort or case-control analytic studies (preferably from >1 center); from multiple time series; or from dramatic results from uncontrolled experiments
III Evidence from opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

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

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

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

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

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

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

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

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

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

Adapted from the Canadian Task Force on the Periodic Health Examination. Strength of recommendation: A Good evidence to support a recommendation for use B Moderate evidence to support a recommendation for use C Poor evidence to support a recommendation Quality of evidence: I Evidence from > or = 1 properly randomized, controlled trial II Evidence from > or = 1 well-designed clinical trial, without randomization; from cohort or case-control analytic studies (preferably from >1 center); from multiple time series; or from dramatic results from uncontrolled experiments III Evidence from opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees 1c.14 **Rationale for using this guideline over others:** Most recent guideline for the prevention of surgical site infection.	
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Importance to Measure and Report?*	**1**
Steering Committee: Was the threshold criterion, *Importance to Measure and Report*, met? **Rationale:**	**1** **Y☐** **N☐**
2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES	
Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)	**Eval Rating**
2a. MEASURE SPECIFICATIONS	
S.1 **Do you have a web page where current detailed measure specifications can be obtained?** S.2 **If yes, provide web page URL:** **2a. Precisely Specified**	
2a.1 **Numerator Statement (***Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome***):** Number of ambulatory surgical center (ASC) admissions with a preoperative order for a prophylactic IV antibiotic for prevention of surgical site infection who received the prophylactic antibiotic on time 2a.2 **Numerator Time Window (***The time period in which cases are eligible for inclusion in the numerator***):** In-facility, prior to discharge 2a.3 **Numerator Details (***All information required to collect/calculate the numerator, including all codes, logic, and definitions***):** DEFINITIONS: Admission: completion of registration upon entry into the facility Prophylactic IV antibiotic for prevention of surgical site infection: an antibiotic prescribed with the intent of reducing the probability of an infection related to an invasive procedure; for purposes of this measures, the following are considered prophylactic for surgical site infection: ampicillin/sulbactam, aztreonam, cefazolin, cefmetazole, cefotetan, cefoxitin, cefuroxime, ciprofloxacin, clindamycin, ertapenem, erythromycin, gatifloxacin, gentamicin, levofloxacin, metronidazole, moxifloxacin, neomycin and vancomycin On time: antibiotic infusion is initiated within one hour prior to the time of the initial surgical incision or the beginning of the procedure (e.g., introduction of endoscope, insertion of needle, inflation of tourniquet) or two hours prior if vancomycin or a fluoroquinolone is administered	**2a-specs** **C☐** **P☐** **M☐** **N☐**
2a.4 **Denominator Statement (***Brief, text description of the denominator - target population being*	

measured):
All ASC admissions with a preoperative order for a prophylactic IV antibiotic for prevention of surgical site infection

2a.5 **Target population gender:** Female, Male
2a.6 **Target population age range:** All ages

2a.7 **Denominator Time Window (***The time period in which cases are eligible for inclusion in the denominator***):**
In-facility, prior to discharge

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

Admission: completion of registration upon entry into the facility

Prophylactic IV antibiotic for prevention of surgical site infection: an antibiotic prescribed with the intent of reducing the probability of an infection related to an invasive procedure; for purposes of this measures, the following are considered prophylactic for surgical site infection: ampicillin/sulbactam, aztreonam, cefazolin, cefmetazole, cefotetan, cefoxitin, cefuroxime, ciprofloxacin, clindamycin, ertapenem, erythromycin, gatifloxacin, gentamicin, levofloxacin, metronidazole, moxifloxacin, neomycin and vancomycin

2a.9 **Denominator Exclusions (***Brief text description of exclusions from the target population***):** ASC admissions with a preoperative order for a prophylactic IV antibiotic for prevention of infections other than surgical site infections (e.g., bacterial endocarditis).

ASC admissions with a preoperative order for a prophylactic antibiotic not administered by the intravenous route.

2a.10 **Denominator Exclusion Details (***All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
The denominator exclusions do not require additional data collection. They are included to offer additional clarification to the measure user to help ensure only the specified admissions are included for measurement.

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

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

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

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

2a.18-19 **Type of Score:** Rate/proportion
2a.20 **Interpretation of Score:** Better quality = Higher score
2a.21 **Calculation Algorithm (***Describe the calculation of the measure as a flowchart or series of steps***):**
The number of admissions with a preoperative order for a prophylactic IV antibiotic for prevention of surgical site infection who received the prophylactic antibiotic on time is divided by the number of ASC admissions with a preoperative order for a prophylactic IV antibiotic during the reporting period, yielding the rate of on time prophylactic IV antibiotic administration for the reporting period.

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

2a.23 **Sampling (Survey) Methodology** *If measure is based on a sample (or survey), provide instructions for*

obtaining the sample, conducting the survey and guidance on minimum sample size (response rate):
The measure is not based on a sample

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

2a.25 **Data source/data collection instrument (***Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
ASC medical records, as well as medication administration records, and variance reports may serve as data sources. No specific collection instrument is required although the ASC Quality Collaboration has developed a sample data collection instrument that may be used as desired. Facilities may use any collection instrument that allows tracking of the timing of prophylactic IV antibiotic administration for all admissions with a preoperative order for prophylaxis.

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

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

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

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

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

TESTING/ANALYSIS

2b. Reliability testing

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

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

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

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N☐

2c. Validity testing

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

2c
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N☐

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

2c.3 Testing Results *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:
Each attribute was measured on a 5 point Likert Scale. The attributes related to validity and average scores are listed below:
1. The measure appears to measure what it is intended to. (Median: 5/5; Mean: 4.9/5.0)
2. The measure is defined in a way that will allow for consistent interpretation of the inclusion and exclusion criteria from center to center. (Median: 5/5; Mean: 4.7/5.0)
3. The data required for the measure are likely to be obtained with reasonable effort. (Median: 5/5; Mean: 4.4/5.0)
4. The data required for the measure are likely to be obtained with reasonable cost. (Median: 5/5; Mean: 4.6/5.0)
5. The data required for the measure can be generated during care delivery. (Median: 5/5; Mean: 4.6/5.0)

2d. Exclusions Justified

2d.1 Summary of Evidence supporting exclusion(s):
Measure exclusions do not limit the denominator cohort, but rather are designed to improve the accuracy of data collection by providing additional clarifying statements to the measure user.

2d.2 Citations for Evidence:
Not applicable

2d.3 Data/sample *(description of data/sample and size)*: Not applicable

2d.4 Analytic Method *(type analysis & rationale)*:
Not applicable

2d.5 Testing Results *(e.g., frequency, variability, sensitivity analyses)*:
Not applicable

2d
C☐
P☐
M☐
N☐
NA ☐

2e. Risk Adjustment for Outcomes/ Resource Use Measures

2e.1 Data/sample *(description of data/sample and size)*: This measure is not risk adjusted

2e.2 Analytic Method *(type of risk adjustment, analysis, & rationale)*:
Not applicable

2e.3 Testing Results *(risk model performance metrics)*:
Not applicable

2e.4 If outcome or resource use measure is not risk adjusted, provide rationale: This process measure does not require risk adjustment.

2e
C☐
P☐
M☐
N☐
NA ☐

2f. Identification of Meaningful Differences in Performance

2f.1 Data/sample from Testing or Current Use *(description of data/sample and size)*: Although data for 671 ASCs are included in the ASC QC database, many report at the corporate level and do not report data for individual ASCs. The ASC QC database includes center-level rates for this measure for 349 ASCs throughout the US. The rates for this measure were collected for the 349 individually-reporting ambulatory surgery centers throughout the US for services provided during April to June 2010.

2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance *(type of analysis & rationale)*:

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N☐

An individual ASC's rate for timely administration of antibiotic may be compared to the standard rate from the ASC Quality website (http://www.ascquality.org/qualityreport.cfm#Antibiotic). A statistically significant difference in performance may be detected by using a standard test of proportions as outlined in most standard statistical texts. Since each delay in administration of the preoperative antibiotic may represent increased surgical site infection risk for the patient, a rate lower than the 94.4% is also of practical significance. The null hypothesis for this test is that the sample proportion from the ASC is not different from the industry standard taken from the ASC Quality website. The alternative is that there is a statistically significant difference. We recommend that this test be performed in its two-sided form so that the ASC may determine if they are either statistically higher or lower than the standard. The recommended p-value for this test is the 0.05 level, but ASCs may have justification for different value. Using this statistical method for detecting significant variances from the industry standard will allow users to determine if differences may be due to sampling error or may indicate a true difference in performance. 2f.3 **Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*: The rate for timely administration of antibiotic ranged from a minimum of 0.2% to a maximum of 100%. The mean rate was 96.0% (SD: 14.6%), while the median rate was 100%. The maximum rates of 100% and a third quartile value of 100% demonstrate that there is an opportunity for improvement in this measure and that full compliance (100%) is achievable for all centers.	
2g. Comparability of Multiple Data Sources/Methods 2g.1 **Data/sample** *(description of data/sample and size)*: This measure is specified for a single data source (paper medical record/flow-sheet) as noted in 2a.24. above 2g.2 **Analytic Method** *(type of analysis & rationale)*: Not applicable 2g.3 **Testing Results** *(e.g., correlation statistics, comparison of rankings)*: Not applicable	**2g** C☐ P☐ M☐ N☐ NA ☐
2h. Disparities in Care 2h.1 **If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*: This measure is not stratified 2h.2 **If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:** At the present time, a federal quality reporting system has not yet been proposed or implemented for ambulatory surgical centers. We anticipate that CMS will issue its proposals for an ASC quality reporting system in the near future. The data the ASC Quality Collaboration currently receives for this measure is collected at the ASC-level or at the level of the corporate parent of the ASC. Corporate parent data submissions combine data from multiple ASCs. Disparity measures by population group require the collection of patient-level data or collection of the data for individual populations of patients. At this time, the ASC Quality Collaboration does not have access to any patient-level or individual population level data that would allow for analysis of subpopulation disparities based on race, sex and age. However, we understand the importance of subpopulation data and are taking steps that would allow us to collect the necessary data. We are actively pursuing the development of a registry that would allow us to develop subpopulation performance data for this measure and others. Potential registry development vendors have been identified and initial communications regarding the project have already taken place. We plan to select a vendor by third quarter of 2011, initiate the development of the registry database immediately upon contract acceptance, and have a functioning registry three months thereafter.	**2h** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Scientific Acceptability of Measure Properties?*	**2**
Steering Committee: Overall, to what extent was the criterion, *Scientific Acceptability of Measure Properties*, met?	***2*** **C☐**

Rationale:	P☐ M☐ N☐
3. USABILITY	
Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)	Eval Rating
3a. Meaningful, Understandable, and Useful Information 3a.1 **Current Use:** In use 3a.2 **Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:** The ASC Quality Collaboration posts a public report of quality data on six ASC quality measures endorsed by the NQF on a quarterly basis. This quarterly report included aggregated performance data on the Prophylactic Intravenous Antibiotic Timing measure. The report for the second quarter of 2010 is available at: http://www.ascquality.org/qualityreport.cfm. Six hundred seventy-one (671) ASCs submitted data on the timing of prophylactic intravenous antibiotic administration for the second quarter 2010 report. 3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):** This measure is in use in several other initiatives. For example, the ASC Association includes this metric in its Outcomes Monitoring Project, which is described at http://www.ascassociation.org/outcomes/. It is also in use in various state association quality data collection and reporting projects, including the Texas Ambulatory Surgery Center Association, located at http://tascs.org/. In addition, the measure has been adopted by the Minnesota Department of Health (MDH) for state reporting by ASCs beginning July 2011. This is described at the MDH website at: http://www.health.state.mn.us/healthreform/measurement/adoptedrule/QualityMeasurementAppendices_101129.pdf **Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*) 3a.4 **Data/sample** *(description of data/sample and size)***:** Interpretability was measured via a formal consensus process. A questionnaire that included ratings of the various characteristics of the measure was distributed to 8 clinicians (RNs) who currently work in ambulatory surgery centers or have responsibility for multiple surgery centers. Two have credentials in quality and the others are involved in quality in their current positions. Responses were received from 7 of the panel members. 3a.5 **Methods** *(e.g., focus group, survey, QI project)***:** The survey was summarized to assess the panel's level of agreement with statements that measured the interpretability of the measure. 3a.6 **Results** *(qualitative and/or quantitative results and conclusions)***:** Each attribute was measured on a 5 point Likert Scale. The attributes related to usability and average scores are listed below: 1. A provider can understand the results of the measure. (Median: 5/5; Mean: 4.9/5.0) 2. If necessary, a provider can use the results of the measure to take action. (Median: 5/5; Mean: 4.9/5.0) 3. This measure has a direct link to improving the outcome and/or process of care. (Median: 5/5; Mean: 4.9/5.0)	3a C☐ P☐ M☐ N☐
3b/3c. Relation to other NQF-endorsed measures 3b.1 **NQF # and Title of similar or related measures:** NQF # 0269: Timing of Prophylactic Antibiotics - Administering Physician; NQF # 0270: Timing of Antibiotic	

Prophylaxis: Ordering Physician; NQF # 0472: Prophylactic Antibiotic Received Within One Hour Prior to Surgical Incision or at the Time of Delivery – Cesarean section; NQF # 0527: Prophylactic antibiotic received within 1 hour prior to surgical incision	
(for NQF staff use) **Notes on similar/related endorsed or submitted measures:**	
3b. Harmonization If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population): **3b.2 Are the measure specifications harmonized? If not, why?** Certain, but not all, of the measure specifications have been harmonized with related measures. The most significant difference is that the ASC QC measure does not incorporate code sets to specify the denominator, as doing so means that data collection becomes retrospective (i.e., after the billing code has been assigned based on the supporting clincal documentation) and therefore inefficient and more expensive for the provider.	**3b** C☐ P☐ M☐ N☐ NA ☐
3c. Distinctive or Additive Value **3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:** The measure allows concurrent data collection. **5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:** The measure specifications allow concurrent data collection, improving the efficiency of measure use.	**3c** C☐ P☐ M☐ N☐ NA ☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Usability?*	**3**
Steering Committee: Overall, to what extent was the criterion, *Usability*, met? **Rationale:**	**3** C☐ P☐ M☐ N☐
4. FEASIBILITY	
Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria)	**Eval Rating**
4a. Data Generated as a Byproduct of Care Processes **4a.1-2 How are the data elements that are needed to compute measure scores generated?** Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition)	**4a** C☐ P☐ M☐ N☐
4b. Electronic Sources **4b.1 Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*) No **4b.2 If not, specify the near-term path to achieve electronic capture by most providers.** Widespread adoption of electronic health records in ambulatory surgical centers would be needed to achieve electronic capture of data elements.	**4b** C☐ P☐ M☐ N☐
4c. Exclusions **4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?** No **4c.2 If yes, provide justification.**	**4c** C☐ P☐ M☐ N☐ NA ☐
4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences	**4d**

4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results. Experience with this measure and feedback from users indicates that reliability is high. Most errors appear to be the result of human factors, such as data entry errors. The ASC Quality Collaboration is not aware of any unintended consequences as a result of the use of this measure.	C☐ P☐ M☐ N☐
4e. Data Collection Strategy/Implementation **4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:** The ASC Quality Collaboration has included "Frequently Asked Questions" in the Implementation Guide for the measure to assist users in their implementation of data collection. **4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:** The measure is designed to allow the possibility of concurrent data collection, which minimizes staff time, effort and cost. There are no fees associated with the use of this measure and benchmarking data is publicly available on the ASC Quality Collaboration´s website. **4e.3 Evidence for costs:** The survey used for validity and interpretability also asked respondents about the feasibility and cost of collecting data. The following two questions support the premise that the cost to collect this information is reasonable for the ASC: The data required for the measure are likely to be obtained with reasonable effort. (Median: 5/5; Mean: 4.4/5.0) The data required for the measure are likely to be obtained with reasonable cost. (Median: 5/5; Mean: 4.6/5.0) **4e.4 Business case documentation:** Not applicable	**4e** C☐ P☐ M☐ N☐
TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility?*	**4**
Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met? **Rationale:**	**4** C☐ P☐ M☐ N☐
RECOMMENDATION	
(for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.**	**Time-limited** ☐
Steering Committee: Do you recommend for endorsement? **Comments:**	Y☐ N☐ A☐
CONTACT INFORMATION	
Co.1 Measure Steward (Intellectual Property Owner) **Co.1 Organization** ASC Quality Collaboration, 5686 Escondida Blvd S, St. Petersburg, Florida, 33715 **Co.2 Point of Contact**	

Donna, Slosburg, BSN, LHRM, CASC, donnaslosburg@ascquality.org, 727-867-0072-

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

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

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

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

ADDITIONAL INFORMATION

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

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

AAAHC: Naomi Kuznets, PhD
Ambulatory Surgery Foundation: Debra Stinchcomb, BSN, CASC, David Shapiro, MD,
Sarah Martin, RN, BS, CASC and Marian Lowe
AMSURG: Deby Samuels, Lorri Smith RN, BSN and Linda Brooks-Belli
AOA/HFAP: Monda Shaver, RN, BSN, CPHIT and Susan Lautner, RN, BSN, MSHL
AORN: Bev Kirchner BSN, CNOR, CASC and Bonnie Denholm, RN, MS, CNOR
ASCOA: Ann Geier RN, MS, CNOR, CASC
ASC Quality Collaboration: Donna Slosburg, BSN, LHRM, CASC
HCA: Kathy Wilson
The Joint Commission: Michael Kulczycki and Kathleen Domzalski
NATIONAL: Rhonda Arnwine, MBA and Terry Hawes, RN, BHA
Novamed: Cassandra Speier
NUETERRA: Rachelle Babin RN, BSN
Surgical Care Affiliates: Kim Wood, MD
Symbion: Steve Whitmore and Gina Throneberry RN, MBA, CASC
USPI: David Zarin, MD, Julie Gunderson RN, MM, CPHQ and Clint Chain, RN, BSN

Ad.2 If adapted, provide name of original measure: Not adapted
Ad.3-5 If adapted, provide original specifications URL or attachment

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.6 Year the measure was first released: 2007
Ad.7 Month and Year of most recent revision: 12, 2010
Ad.8 What is your frequency for review/update of this measure? Annually, or more frequently if indicated
Ad.9 When is the next scheduled review/update for this measure? 12, 2011

Ad.10 Copyright statement/disclaimers: None

Ad.11 -13 Additional Information web page URL or attachment:

Date of Submission (*MM/DD/YY*)**:** 06/13/2011