Measure Information Form

Measure Set: Surgical Care Improvement Project (SCIP)

Set Measure ID #: SCIP-Inf-2

<table>
<thead>
<tr>
<th>Set Measure ID #</th>
<th>Performance Measure Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCIP-Inf-2a</td>
<td>Prophylactic Antibiotic Selection for Surgical Patients - Overall Rate</td>
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<td>SCIP-Inf-2b</td>
<td>Prophylactic Antibiotic Selection for Surgical Patients - CABG</td>
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<td>SCIP-Inf-2c</td>
<td>Prophylactic Antibiotic Selection for Surgical Patients - Other Cardiac Surgery</td>
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<td>Prophylactic Antibiotic Selection for Surgical Patients - Hip Arthroplasty</td>
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<tr>
<td>SCIP-Inf-2e</td>
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<tr>
<td>SCIP-Inf-2f</td>
<td>Prophylactic Antibiotic Selection for Surgical Patients - Colon Surgery</td>
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<td>SCIP-Inf-2g</td>
<td>Prophylactic Antibiotic Selection for Surgical Patients - Hysterectomy</td>
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<tr>
<td>SCIP-Inf-2h</td>
<td>Prophylactic Antibiotic Selection for Surgical Patients - Vascular Surgery</td>
</tr>
</tbody>
</table>

Performance Measure Name: Prophylactic Antibiotic Selection for Surgical Patients.

Description: Surgical patients who received prophylactic antibiotics consistent with current guidelines (specific to each type of surgical procedure).

Rationale: A goal of prophylaxis with antibiotics is to use an agent that is safe, cost-effective, and has a spectrum of action that covers most of the probable intraoperative contaminants for the operation. First or second-generation cephalosporins satisfy these criteria for most operations, although anaerobic coverage is needed for colon surgery. Vancomycin is not recommended for routine use because of the potential for development of antibiotic resistance, but is acceptable if a patient is allergic to beta-lactams, as are fluoroquinolones and clindamycin in selected situations.

Type of Measure: Process

Improvement Noted As: An increase in the rate.
**Numerator Statement:** Number of surgical patients who received prophylactic antibiotics recommended for their specific surgical procedure.

**Included populations:** Not Applicable

**Excluded Populations:** None

**Data Elements:**
- Antibiotic Administration Route
- Antibiotic Allergy
- Antibiotic Name
- Oral Antibiotics
- Vancomycin

The antibiotic regimens described in the table which follows later in this section reflect the combined, published recommendations of the American Society of Health-System Pharmacists, the Medical Letter, the Infectious Diseases Society of America, the Sanford Guide to Antimicrobial Therapy 2001, and the Surgical Infection Society.

**Denominator Statement:** All selected surgical patients with no evidence of prior infection.

**Included Populations:**
- An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.10 for ICD-9-CM codes).
  AND
- An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.01-5.08 for ICD-9-CM codes).

**Excluded Populations:**
- Patients less than 18 years of age
- Patients who have a length of Stay >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 had a Joint Revision
- Patients who expired perioperatively
- Patients who were receiving antibiotics more than 24 hours prior to surgery (except colon surgery patients taking oral prophylactic antibiotics)
- Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics)
- Patients who did not receive any antibiotics before or during surgery, or within 24 hours after Anesthesia End Time (i.e., patient did not receive prophylactic antibiotics)
- Patients who did not receive any antibiotics during this hospitalization
Data Elements:

- Anesthesia End Date
- Anesthesia End Time
- Anesthesia Start Date
- Admission Date
- Antibiotic Administration Date
- Antibiotic Administration Time
- Antibiotic Received
- Birthdate
- Clinical Trial
- Discharge Date
- ICD-9-CM Principal Diagnosis Code
- ICD-9-CM Principal Procedure Code
- Infection Prior to Anesthesia
- Joint Revision
- Laparoscope
- Perioperative Death
- Surgical Incision Time

Risk Adjustment: No

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical records.

Data Accuracy: Abstracted antibiotics are those administered from the time of arrival through the first 48 hours (72 hours for CABG or Other Cardiac Surgery) after the Anesthesia End Time. Refer to Appendix C, Table 2.1, which contains a complete listing of antibiotics.

Measure Analysis Suggestions: Consideration may be given to relating this measure to SCIP-Inf-1 and SCIP-Inf-3 in order to evaluate which aspects of antibiotic prophylaxis would most benefit from an improvement effort. The process owners for selection of appropriate antibiotics could include physicians/APNs/PAs and hospital committees (i.e., QA, Infection Control, Pharmacy and Therapeutics, Surgical Section Subcommittees, etc.) any of which may choose to address this physician/APN/PA practice issue as part of a larger surgical infection prevention initiative.

Sampling: Yes, for additional information see the Population and Sampling Specifications Section.

Data Reported As: Overall aggregate rate for all surgeries and stratified rates by data element ICD-9-CM Principal Procedure Code, generated from count data reported as a proportion.
Selected References:

## Prophylactic Antibiotic Regimen Selection for Surgery

<table>
<thead>
<tr>
<th>Surgical Procedure</th>
<th>Approved Antibiotics</th>
</tr>
</thead>
<tbody>
<tr>
<td>CABG, Other Cardiac or Vascular</td>
<td>Cefazolin, Cefuroxime, Table 3.1 or Vancomycin**, Table 3.8 *If β-lactam allergy: Vancomycin* Table 3.8 or Clindamycin* Table 3.9</td>
</tr>
<tr>
<td>Hip/Knee Arthroplasty</td>
<td>Cefazolin or Cefuroxime Table 3.2 or Vancomycin**, Table 3.8 *If β-lactam allergy: Vancomycin* Table 3.8 or Clindamycin* Table 3.9</td>
</tr>
<tr>
<td>Colón</td>
<td>Cefotetan, Cefoxitin, Ampicillin/Sulbactam Table 3.5, or Ertapenem† Table 3.6b OR Cefazolin or Cefuroxime Table 3.2 + Metronidazole Table 3.6a *If β-lactam allergy: Clindamycin Table 3.9 + Aminoglycoside Table 2.11, or Clindamycin Table 3.9 + Quinolone Table 3.12, or Clindamycin Table 3.9 + Aztreonam Table 2.7 OR Metronidazole Table 3.6a with Aminoglycoside Table 2.11, or Metronidazole Table 3.6a + Quinolone Table 3.12</td>
</tr>
<tr>
<td>Hysterectomy</td>
<td>Cefotetan, Cefazolin, Cefoxitin, Cefuroxime, or Ampicillin/Sulbactam Table 3.7 *If β-lactam allergy: Clindamycin Table 3.9 + Aminoglycoside Table 2.11 or Clindamycin Table 3.9 + Quinolone Table 3.12 or Clindamycin Table 3.9 + Aztreonam Table 2.7 OR Metronidazole Table 3.6a + Aminoglycoside Table 2.11 or Metronidazole Table 3.6a + Quinolone Table 3.12</td>
</tr>
<tr>
<td>Special Considerations</td>
<td>*For cardiac, orthopedic, and vascular surgery, if the patient is allergic to β-lactam antibiotics, Vancomycin or Clindamycin are acceptable substitutes. **Vancomycin is acceptable with a physician/APN/PA/pharmacist documented justification for its use (see data element Vancomycin) † A single dose of ertapenem is recommended for colon procedures.</td>
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</tbody>
</table>

*For cardiac, orthopedic, and vascular surgery, if the patient is allergic to β-lactam antibiotics, Vancomycin or Clindamycin are acceptable substitutes.

**Vancomycin is acceptable with a physician/APN/PA/pharmacist documented justification for its use (see data element Vancomycin)

† A single dose of ertapenem is recommended for colon procedures.
**SCIP-INF-2**: Prophylactic Antibiotic Selection for Surgical Patients

**Numerator**: Number of surgical patients who received prophylactic antibiotics recommended for their specific surgical procedure.

**Denominator**: All selected surgical patients with no evidence of prior infection.

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**Stratification Table**:

<table>
<thead>
<tr>
<th>Code</th>
<th>Stratified By</th>
<th><em>Principal Procedure Code (Allowable Value)</em></th>
</tr>
</thead>
</table>
| SCIP-INF2a | Overall Rate | **
| SCIP-INF2b | CABG | Table 5.01 |
| SCIP-INF2c | Other Cardiac Surgery | Table 5.02 |
| SCIP-INF2d | Hip Arthroplasty | Table 5.04 |
| SCIP-INF2e | Knee Arthroplasty | Table 5.05 |
| SCIP-INF2f | Colon Surgery | Table 5.03 |
| SCIP-INF2g | Hysterectomy | Table 5.06 Or 1.07 |
| SCIP-INF2h | Vascular Surgery | Table 5.08 |

* This refers to the data element 'ICD-9-CM Principal Procedure Code'. Each case will be stratified according to the principal procedure code, after the Category Assignments are completed and the overall rate is calculated.

** No allowable value exists for the overall rate. It includes all procedures on Tables 5.01 to 5.08.

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The flowchart illustrates the decision process for inclusion in the SCIP Initial Patient Population and the criteria for stratification based on patient age and ICD-9-CM Principal Procedure Code.
INF-2
H

Anesthesia Start Date
= UTD

INF-2
D

Non-UTD Value

Surgery Days (in days) = Anesthesia Start Date - Admission Date

INF-2
B

Surgery Days
≥ 0

INF-2
B

INF-2
X

Missing

Infection Prior to Anesthesia
= Y

INF-2
B

INF-2
X

= N

ICD-9-CM Principal Procedure Code
On Table 5.04 or 5.05

Joint Revision
= Y

INF-2
B

= N

Postoperative Death
= N

INF-2
X

Missing

Antibiotic Received
= Y

INF-2
B

= N

INF-2
X

= 1, 2

ICD-9-CM Principal Procedure Code
Not on Table 5.03

On Table 5.03

INF-2
B

INF-2
X

Missing

Oral Antibiotics
= N

INF-2
B

= Y

Antibiotic Received
= 1

INF-2
B

INF-2
B

= 2

= 3

INF-2
1
Specifications Manual for National Hospital Inpatient Quality Measures
Discharges 10-01-09 (4Q09) through 03-31-10 (1Q10)
STOP here for CMS. CONTINUE to “N” for The Joint Commission.
For all Stratified Measures (b-h)

Not in Measure Population

Overall Rate Category Assignment

= B or X

= D or E

ICD-9-CM Principal Procedure Code

On Table 5.01

On Table 5.02 or 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08

ICD-9-CM Principal Procedure Code

On Table 5.02

On Table 5.03 or 5.04 or 5.05 or 5.06 or 5.07 or 5.08

ICD-9-CM Principal Procedure Code

On Table 5.04

On Table 5.03 or 5.05 or 5.06 or 5.07 or 5.08

INF-2

Note: Initialize the Measure Category Assignment for each strata measure (b-g) = 'B'. Do not change the Measure Category Assignment that was already calculated for the overall rate (SCIP-INF-2a).

The rest of the algorithm will reset the appropriate Measure Category Assignment to be equal to the overall rate's (SCIP-INF-2a) Measure Category Assignment.