Total Knee Replacement
Measure #4: Preoperative Antibiotic Infusion with Proximal Tourniquet

Measure Description
Percentage of patients undergoing a total knee replacement who had the prophylactic antibiotic completely infused prior to the inflation of the proximal tourniquet

Measure Components

<table>
<thead>
<tr>
<th>Numerator Statement</th>
<th>Patients who had the prophylactic antibiotic completely infused prior to the inflation of the proximal tourniquet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator Statement</td>
<td>All patients undergoing a total knee replacement</td>
</tr>
<tr>
<td>Denominator Exceptions</td>
<td>Documentation of medical reason for not completely infusing the prophylactic antibiotic prior to the inflation of the proximal tourniquet (e.g., a tourniquet was not used)</td>
</tr>
<tr>
<td>Supporting Guideline &amp; Other References</td>
<td>The following evidence statements are quoted verbatim from the referenced clinical guidelines:</td>
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<tr>
<td></td>
<td>If a proximal tourniquet is used, the antimicrobial should be completely infused before inflation. (National Surgical Infection Prevention Project Advisory Statement 2004)²⁴</td>
</tr>
</tbody>
</table>

Measure Importance
Relationship to desired outcome
The Surgical Care Improvement Project (SCIP) evaluates the timing and appropriateness of the prophylactic antibiotic. This measure evaluates that the prophylactic antibiotic is completely infused prior to the inflation of the tourniquet.

Opportunity for Improvement
Antibiotic prophylaxis was evaluated by SooHoo et al. They evaluated the timing, the discontinuation, the appropriateness of the antibiotic and the proximal tourniquet inflation after infusion. Adherence to this indicator ranged from 24 to 27 percent at the 3 hospitals.¹³

IOM Domains of Health Care Quality Addressed
- Safe
- Effective
- Efficient

Exception Justification
A denominator exception has been added to capture those patients for whom a tourniquet was not used.

Harmonization with Existing Measures
This measure addresses the infusion of the prophylactic antibiotic prior to the inflation of the proximal tourniquet. The current SCIP measure does not address the antibiotic infusion prior to the tourniquet inflation.
### Measure Designation

| Measure purpose          | • Quality improvement  
|                         | • Accountability        |
| Type of measure         | • Process                |
| Level of Measurement    | • Individual practitioner|
| Care setting            | • Hospital care          |
| Data source             | • Electronic health record (EHR) data  
|                         | • Administrative Data/Claims (inpatient or outpatient claims)  
|                         | • Administrative Data/Claims Expanded (multiple-source)  
|                         | • Paper medical record  
|                         | • Registry data          |

### Technical Specifications: Administrative/Claims Data

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper). Users report a rate based on all patients in a given practice for whom data are available and who meet the eligible population/denominator criteria.

The specifications listed below are those needed for performance calculation. Additional CPT II codes may be required depending on how measures are implemented. (Reporting vs. Performance)

#### Denominator (Eligible Population)

All patients undergoing a total knee replacement

CPT Service Code: 27446, 27447, 27438, or 27442

#### Numerator

Patients who had the prophylactic antibiotic completely infused prior to the inflation of the proximal tourniquet

Report the CPT Category II code:

XXXXF: Patients who had the prophylactic antibiotic completely infused prior to inflation of the proximal tourniquet in development for this numerator

#### Denominator Exceptions

Documentation of medical reason for not completely infusing the prophylactic antibiotic prior to the inflation of the proximal tourniquet (e.g., a tourniquet was not used)

- Append modifier to CPT Category II code: XXXXF-1P