

**Quality ID #351: Total Knee Replacement: Venous Thromboembolic and Cardiovascular Risk Evaluation**

- National Quality Strategy Domain: Patient Safety
- Meaningful Measure Area: Preventive Care

**2021 COLLECTION TYPE:**  
**MIPS CLINICAL QUALITY MEASURES (CQMS)**

**MEASURE TYPE:**  
Process – High Priority

**DESCRIPTION:**  
Percentage of patients regardless of age undergoing a total knee replacement who are evaluated for the presence or absence of venous thromboembolic and cardiovascular risk factors within 30 days prior to the procedure (e.g., History of Deep Vein Thrombosis (DVT), Pulmonary Embolism (PE), Myocardial Infarction (MI), Arrhythmia and Stroke)

**INSTRUCTIONS:**  
This measure is to be submitted **each time** a procedure for total knee replacement is performed during the performance period. There is no diagnosis associated with this measure. This measure may be submitted by Merit-based Incentive Payment System (MIPS) eligible clinicians who perform the quality actions described in the measure based on the services provided and the measure-specific denominator coding.

**Measure Submission Type:**  
Measure data may be submitted by individual MIPS eligible clinicians, groups, or third party intermediaries. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure. The quality-data codes listed do not need to be submitted by MIPS eligible clinicians, groups, or third party intermediaries that utilize this modality for submissions; however, these codes may be submitted for those third party intermediaries that utilize Medicare Part B claims data. For more information regarding Application Programming Interface (API), please refer to the Quality Payment Program (QPP) website.

**DENOMINATOR:**  
All patients regardless of age undergoing a total knee replacement

**Denominator Criteria (Eligible Cases):**  
All patients, regardless of age  
**AND**  
Patient procedure during the performance period (CPT): 27438, 27442, 27445, 27446, 27447

**NUMERATOR:**  
Patients who are evaluated for the presence or absence of venous thromboembolic and cardiovascular risk factors within 30 days prior to the procedure (e.g., history of DVT, PE, MI, arrhythmia and stroke)

**Numerator Options:**  
**Performance Met:** Patients who are evaluated for venous thromboembolic and cardiovascular risk factors within 30 days prior to the procedure (e.g., history of DVT, PE, MI, arrhythmia and stroke) (**G9298**)

**OR**  
**Performance Not Met:** Patients who are not evaluated for venous thromboembolic and cardiovascular risk factors within

30 days prior to the procedure (e.g., history of DVT, PE, MI, arrhythmia and stroke, reason not given)  
(G9299)

**RATIONALE:**

Prior to a total knee replacement, the patient's venous thromboembolic and cardiovascular risk should be evaluated. A population-based study of all Olmstead County, Minnesota, patients undergoing a total hip or knee arthroplasty from 1994 - 2008, reported that patients undergoing a total knee arthroplasty with a previous history of a cardiac event or a thromboembolic event were associated with an increased risk of a 90-day cardiac or thromboembolic event following surgery (Singh JA, Jensen MR, Harmsen WS, Gabriel SE, Lewallen DG, 2011).

A study using the Danish national resident registries compared all patients undergoing a primary total hip replacement and total knee replacement from 1998 – 2007 to control groups not undergoing one of the procedures and found that the MI rate 2 weeks after total knee replacement was increased 31-fold compared to the control group (Lalmohamed A, Vestergaard P, Klop C, Grove EL, 2012).

Any preoperative disease state should be identified and managed prior to surgery to minimize the risk of the surgical procedure.

This measure is designed for use by physicians and eligible health care professionals managing ongoing care for all patients undergoing a total knee replacement. This measure addresses the preoperative period.

**CLINICAL RECOMMENDATION STATEMENT:**

*ACC/AHA 2007 Guidelines on Perioperative Cardiovascular Evaluation and Care for the Noncardiac Surgery* (Fleischer LA, Beckman JA, Brown KA, et al. ACC/AHA, 2007)

In patients with known coronary artery disease (CAD) or the new onset of signs or symptoms suggestive of CAD, baseline cardiac assessment should be performed. In the asymptomatic patient, a more extensive assessment of history and physical is warranted in those individuals 50 years of age or older, because the evidence related to the determination of cardiac risk factors and derivation of a Revised Cardiac Risk Index occurred in this population. Preoperative cardiac evaluation must therefore be carefully tailored to the circumstances that have prompted the evaluation and to the nature of the surgical illness.

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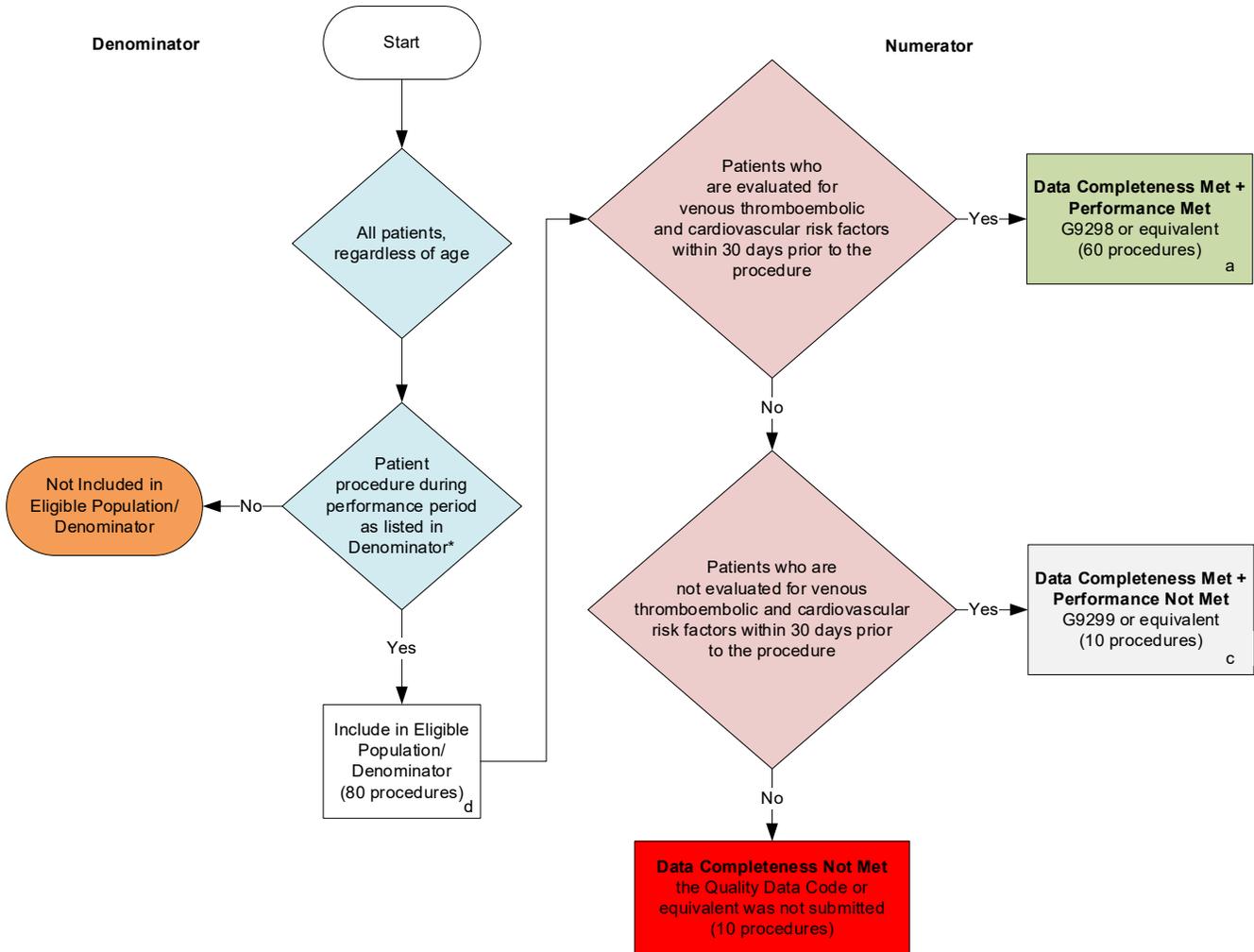
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**2021 Clinical Quality Measure Flow for Quality ID #351:  
Total Knee Replacement: Venous Thromboembolic and Cardiovascular Risk Evaluation**

*Disclaimer: Refer to the measure specification for specific coding and instructions to submit this measure.*



**SAMPLE CALCULATIONS**

**Data Completeness=**  

$$\frac{\text{Performance Met (a=60 procedures)} + \text{Performance Not Met (c=10 procedures)}}{\text{Eligible Population / Denominator (d=80 procedures)}} = \frac{70 \text{ procedures}}{80 \text{ procedures}} = 87.50\%$$

**Performance Rate=**  

$$\frac{\text{Performance Met (a=60 procedures)}}{\text{Data Completeness Numerator (70 procedures)}} = \frac{60 \text{ procedures}}{70 \text{ procedures}} = 85.71\%$$

\*See the posted measure specification for specific coding and instructions to submit this measure  
 NOTE: Submission Frequency: Procedure

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**2021 Clinical Quality Measure Flow Narrative for Quality ID #351:  
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1. Start with Denominator
2. All patients, regardless of age
3. Check Patient procedure during performance period as listed in Denominator.
  - a. If Patient procedure during performance period as listed in Denominator equals No, do not include in Eligible Population/Denominator. Stop Processing.
  - b. If Patient procedure during performance period as listed in Denominator equals Yes, include in Eligible Population/Denominator.
4. Denominator Population:
  - a. Denominator Population is all Eligible Procedures in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 80 procedures in the Sample Calculation.
5. Start Numerator
6. Check Patients who are evaluated for venous thromboembolic and cardiovascular risk factors within 30 days prior to the procedure:
  - a. If Patients who are evaluated for venous thromboembolic and cardiovascular risk factors within 30 days prior to the procedure equals Yes, include in Data Completeness Met and Performance Met.
    - Data Completeness Met and Performance Met letter is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 60 procedures in the Sample Calculation.
  - b. If Patients who are evaluated for venous thromboembolic and cardiovascular risk factors within 30 days prior to the procedure equals No, proceed to check Patients who are not evaluated for venous thromboembolic and cardiovascular risk factors within 30 days prior to the procedure.
7. Check Patients who are not evaluated for venous thromboembolic and cardiovascular risk factors within 30 days prior to the procedure:
  - a. If Patients who are not evaluated for venous thromboembolic and cardiovascular risk factors within 30 days prior to the procedure equals Yes, include in Data Completeness Met and Performance Not Met.
    - Data Completeness Met and Performance Not Met letter is represented in the Data Completeness in the Sample Calculation listed at the end of this document. Letter c equals 10 procedures in the Sample Calculation.
  - b. If Patients who are not evaluated for venous thromboembolic and cardiovascular risk factors within 30 days prior to the procedure equals No, proceed to check Data Completeness Not Met.
8. Check Data Completeness Not Met:
  - If Data Completeness Not Met, the Quality Data Code or equivalent was not submitted. 10 procedures have been subtracted from the Data Completeness Numerator in the Sample Calculation.

### **Sample Calculations**

Data Completeness equals Performance Met (a equals 60 procedures) plus Performance Not Met (c equals 10 procedures) divided by Eligible Population / Denominator (d equals 80 procedures). All equals 70 procedures divided by 80 procedures. All equals 87.50 percent.

Performance Rate equals Performance Met (a equals 60 procedures) divided by Data Completeness Numerator (70 procedures). All equals 60 procedures divided by 70 procedures. All equals 85.71 percent.

\*See the posted measure specification for specific coding and instructions to submit this measure.

NOTE: Submission Frequency: Procedure

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