

**Measure #351: Total Knee Replacement: Venous Thromboembolic and Cardiovascular Risk Evaluation – National Quality Strategy Domain: Patient Safety**

**2017 OPTIONS FOR INDIVIDUAL MEASURES:**  
**REGISTRY ONLY**

**MEASURE TYPE:**  
Process

**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 reported **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 reported by eligible clinicians who perform the quality actions described in the measure based on the services provided and the measure-specific denominator coding.

**Measure Reporting:**

The listed denominator criteria is used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions allowed by the measure. The quality-data codes listed do not need to be submitted for registry-based submissions; however, these codes may be submitted for those registries that utilize claims data.

**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 including (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 THR and TKR from 1998 – 2007 to control groups not undergoing one of the procedures and found that the AMI rate 2 weeks after TKR 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.

**COPYRIGHT:**

© 2012 American Association of Hip and Knee Surgeons. All rights reserved.

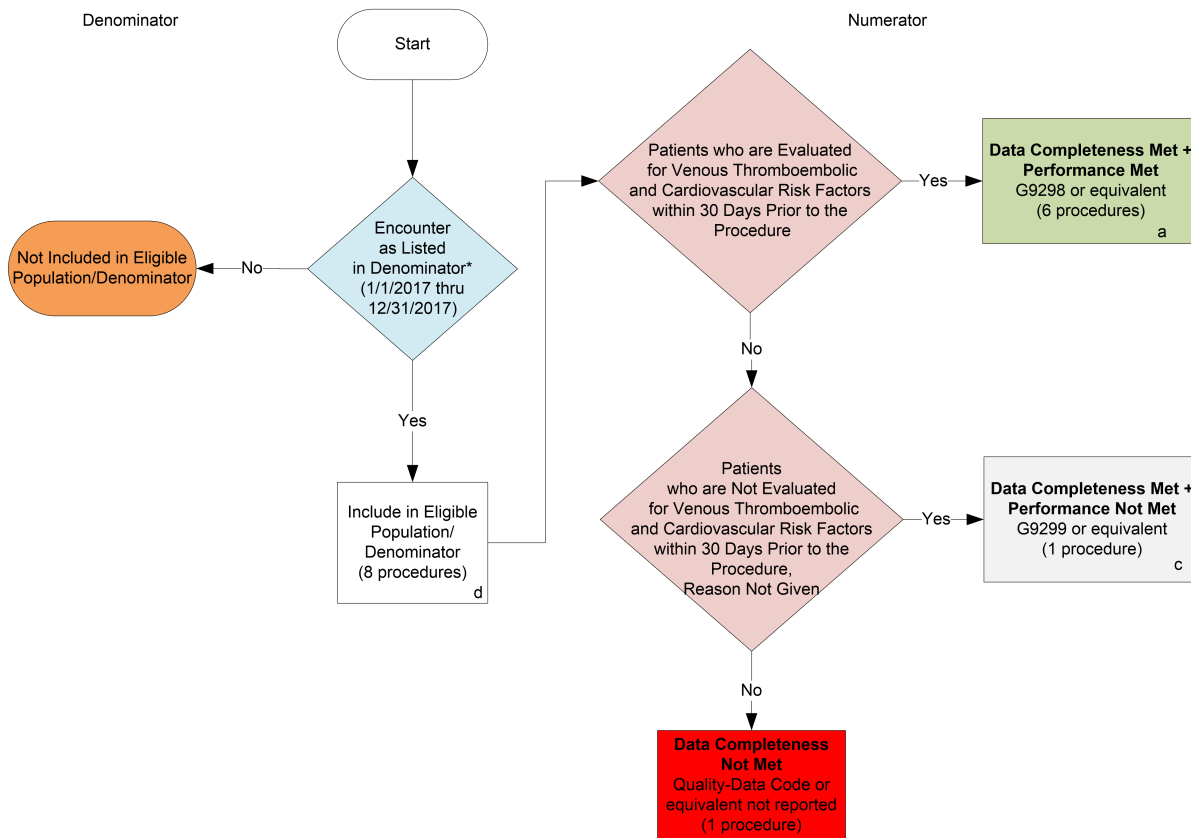
These performance measures are not clinical guidelines. They do not establish a standard of medical care and have not been tested for all potential applications. These Measures and specifications are provided "as is" without warranty of any kind. AAHKS shall not be responsible for any use of these performance measures.

Limited proprietary coding is contained in the Measure specifications for convenience. Users of the proprietary code sets should obtain all necessary licenses from the owners of these code sets. AAHKS disclaims all liability for use or accuracy of any Current Procedural Terminology (CPT®) or other coding contained in the specifications.

The Measures are subject to review and may be revised at any time by AAHKS. The Measures may not be altered without the prior written approval of AAHKS. Users of the Measures shall not have the right to alter, enhance, or otherwise modify the Measures.

CPT® contained in the Measures specifications is copyright 2004-2016 American Medical Association.

**2017 Registry Individual Measure Flow**  
**#351: Total Knee Replacement: Venous Thromboembolic and Cardiovascular Risk Evaluation**



**SAMPLE CALCULATIONS:**

**Data Completeness=**

Performance Met (a=6 procedures) + Performance Not Met (c=1 procedures) =  $\frac{7 \text{ procedures}}{8 \text{ procedures}} = 87.50\%$   
 Eligible Population / Denominator (d=8 procedures) =

**Performance Rate=**

Performance Met (a=6 procedures) =  $\frac{6 \text{ procedures}}{7 \text{ procedures}} = 85.71\%$   
 Data Completeness Numerator (7 procedures) =

\*See the posted Measure Specification for specific coding and instructions to report this measure  
 NOTE: Reporting Frequency: Procedure

CPT only copyright 2016 American Medical Association. All rights reserved.  
 The measure diagrams were developed by CMS as a supplemental resource to  
 be used in conjunction with the measure specifications. They should not be  
 used alone or as a substitution for the measure specification.

v1

## 2017 Registry Individual Measure Flow

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

Please refer to the specific section of the Measure Specification to identify the Denominator and numerator information for use in reporting this Individual Measure.

1. Start with Denominator
2. Check Encounter:
  - a. If Encounter as Listed in the Denominator equals No, do not include in Eligible Population or Denominator. Stop Processing.
  - b. If Encounter as Listed in the Denominator equals Yes, include in denominator population.
3. Denominator Population:
  - a. Eligible population or Denominator is all Eligible Patients in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 8 procedures in the sample calculation.
4. Start Numerator
5. 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.
  - b. Data Completeness Met and Performance Met is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 6 procedures in Sample Calculation.
  - c. 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, Reason Not Given.
6. Check Shared Patients who are Not Evaluated for Venous Thromboembolic and Cardiovascular Risk Factors within 30 Days Prior to the Procedure, Reason Not Given:
  - a. If Patients who are Not Evaluated for Venous Thromboembolic and Cardiovascular Risk Factors within 30 Days Prior to the Procedure, Reason Not Given equals Yes, include in Data Completeness Met and Performance Not Met.
  - b. Data Completeness Met and Performance Not Met is represented in the Data Completeness in the Sample Calculation listed at the end of this document. Letter c equals 1 procedure in the Sample Calculation.
  - c. If Patients who are Not Evaluated for Venous Thromboembolic and Cardiovascular Risk Factors within 30 Days Prior to the Procedure, Reason Not Given equals No, proceed to Data Completeness Not Met.

7. Check Data Completeness Not Met:

- a. If Data Completeness Not Met, the Quality Data Code or equivalent was not reported. 1 procedure has been subtracted from the data completeness numerator in sample calculation.

**SAMPLE CALCULATIONS:**

**Data Completeness=**

$$\frac{\text{Performance Met (a=6 procedures)} + \text{Performance Not Met (c=1 procedures)}}{\text{Eligible Population / Denominator (d=8 procedures)}} = \frac{7 \text{ procedures}}{8 \text{ procedures}} = 87.50\%$$

**Performance Rate=**

$$\frac{\text{Performance Met (a=6 procedures)}}{\text{Data Completeness Numerator (7 procedures)}} = \frac{6 \text{ procedures}}{7 \text{ procedures}} = 85.71\%$$