

## Measure Information Form

**Measure Set:** Venous Thromboembolism (VTE)

**Set Measure Set ID #:** VTE-5

**Performance Measure Name:** Venous Thromboembolism Warfarin Therapy Discharge Instructions

**Description:** This measure assesses the number of patients diagnosed with confirmed VTE that are discharged to home, home care, court/law enforcement or home on hospice care on warfarin with written discharge instructions that address **all** four criteria: compliance issues, dietary advice, follow-up monitoring, and information about the potential for adverse drug reactions/interactions.

**Rationale:** In anticoagulation therapy programs, patient education is a vital component to achieve successful outcomes, and reducing hospital readmission rate. Patients benefit from education about the potential consequences of both their disease and its treatment (Institute for Clinical Systems Improvement 2006). Warfarin is commonly involved in adverse drug events (Ansell, J. 2008). Adverse drug events can include subtherapeutic clot formation, and supertherapeutic hemorrhage. Anticoagulation therapy poses risks to patients due to complex dosing, requisite follow-up monitoring and inconsistent patient compliance. The use of standardized practices for anticoagulation therapy that includes patient/caregiver involvement may reduce the risk of adverse drug events (van Walraven, et. al. 2006).

The Joint Commission National Patient Safety Goal “Reduce the likelihood of patient harm associated with the use of anticoagulant therapy” states that the organization provides education regarding anticoagulation therapy to patients/family that includes the importance of follow-up monitoring, compliance issues, dietary restrictions, and potential for adverse drug reactions and interactions.

**Type of Measure:** Process

**Improvement Noted As:** An increase in the rate

**Numerator Statement:** Patients with documentation that they or their caregivers were given written discharge instructions or other educational material about warfarin that addressed **all** of the following:

1. compliance issues
2. dietary advice
3. follow-up monitoring
4. potential for adverse drug reactions and interactions

**Included Populations:** Not Applicable

**Excluded Populations:** None

**Data Elements:**

- *Discharge Instructions Address Compliance Issues*
- *Discharge Instructions Address Dietary Advice*
- *Discharge Instructions Address Follow-up Monitoring*
- *Discharge Instructions Address Potential for Adverse Drug Reactions and Interactions*

**Denominator Statement:** Patients with confirmed VTE discharged on warfarin therapy

**Included Populations:**

- Discharges with an *ICD-9-CM Principal or Other Diagnosis Codes* of VTE as defined in Appendix A, Table 7.03 or 7.04
- Discharged to home, home care or court/law enforcement
- Discharged to home for hospice care

**Excluded Populations:**

- Patients less than 18 years of age
- Patients who have a length of stay greater than 120 days
- Patients enrolled in clinical trials
- Patients without *Warfarin Prescribed at Discharge*
- Patients without VTE confirmed by diagnostic testing

**Data Elements:**

- *Admission Date*
- *Birthdate*
- *Clinical Trial*
- *Discharge Date*
- *Discharge Disposition*
- *ICD-9-CM Other Diagnosis Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *VTE Confirmed*
- *VTE Diagnostic Test*
- *Warfarin Prescribed at Discharge*

**Risk Adjustment:** No

**Data Collection Approach:** Retrospective data sources for required data elements include administrative data and medical record documents. Some hospitals may prefer to gather data concurrently by identifying patients in the population of interest. This approach provides opportunities for improvement at the point of care/service. However, complete documentation includes the principal or other ICD-9-CM diagnosis and procedure codes, which require retrospective data entry.

**Data Accuracy:** Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

**Measure Analysis Suggestions:** Each of the four education categories related to warfarin therapy should be assessed individually in order to determine which area needs more educational information or improved documentation.

**Sampling:** Yes, please refer to the measure set specific sampling requirements and for additional information see the Population and Sampling Specifications.

**Data Reported as:** Aggregate rate generated from count data reported as a proportion.

**Selected References:**

- Ansell J, Hirsch J, Hylek E, Jacobson A, Crowther M, Palareti G. Pharmacology and management of the vitamin K antagonists: The Eighth ACCP Conference on Antithrombotic and Thrombolytic Therapy. *Chest*. 2008 133:160S-198S.
- Beyth RJ, Quinn L, Landefeld CS. A multicomponent intervention to prevent major bleeding complications in older patients receiving warfarin: a randomized, controlled trial. *Annals of Internal Medicine*, 2000 Nov 7;133(9):687-95
- Geerts WH, Pineo GF, Heit JA, et al. Prevention of venous thromboembolism: the Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. *Chest*. 2004 Sep; 126(3 Suppl):338S-400S.
- Gorski LA. Thromboembolism: implications for the home care nurse. *Home Healthcare Nurse*. 2007. 25;2:95-100.
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- Healthcare organizations heart failure measure reflects better care? *Qual Saf Health Care* 2006;15:414-417.
- Institute for Clinical Systems Improvement (ICSI). Anticoagulation therapy supplement. Bloomington (MN): *Institute for Clinical Systems Improvement* (ICSI); 2006 Apr.49p. [91 references]
- Leino-Kilpi H, Johansson K, Heikkinen K et al. Patient education and health-related quality of life: surgical hospital patients as a case in point. *J Nurs Care Qual*. 2005 Oct-Dec;20(4):307-16; quiz 317-8.
- National Council on Patient Information and Education, Enhancing Prescription Medicine Adherence: A National Action Plan, White Paper, *Bethesda, MD*; August 2007.
- Oermann MH, Masserang M, Makey M et al. Clinic visit and waiting: patient education and satisfaction. *Medsurg Nursing*. 2002 Oct;11(5):247-50.
- Stafford RS, Singer DE. National patterns of warfarin use in atrial fibrillation. *Arch Intern Med* 1996;156:2357-41.
- The Joint Commission. National Patient Safety Goals. Retrieved from the World Wide Web on February 10, 2014.  
[http://www.jointcommission.org/assets/1/6/2014\\_HAP\\_NPSG\\_E.pdf](http://www.jointcommission.org/assets/1/6/2014_HAP_NPSG_E.pdf).

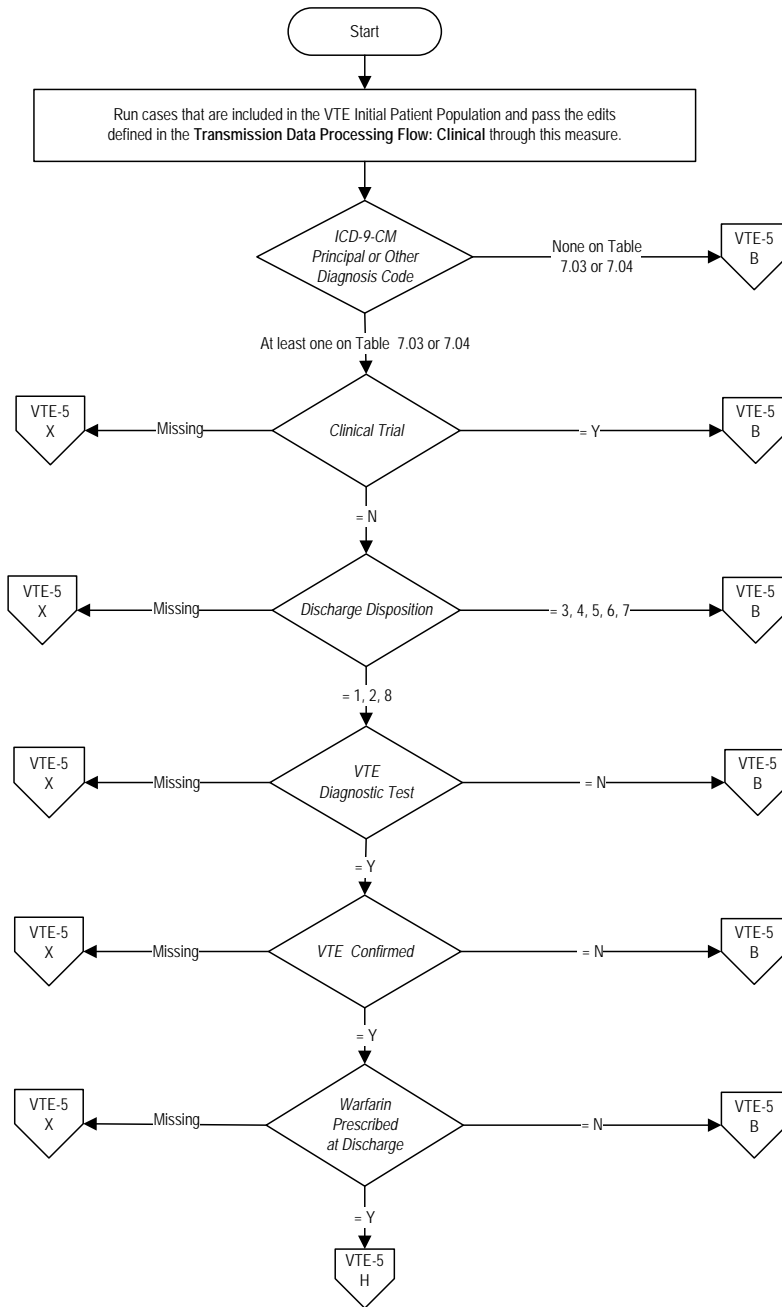
- Van Such M, Naessens JM, Strobel RJ, Huddleston JM, et al. Effect of discharge instructions on readmission of hospitalized patients with heart failure: do all of the Joint Commission on accreditation of healthcare organizations heart failure measure reflect better care: *Qual Saf Health Care* 2006; 15:414-417.
- Van Walraven, C., Jennings, A., Oake, N., Fergusson, D., and Forster, A.J. Effect of Study Setting on Anticoagulation Control: A Systematic Review and Metagression. *Chest* 2006; 129; 1155-1166.
- Waterman AD, Milligan PE, Bayer L, Banet GA, et al. Effect of warfarin non adherence on control of the international normalized ratio. *Amer J of Health-System Phar.* 2004; 61:1258-1264.

## VTE-5: Venous Thromboembolism Warfarin Therapy Discharge Instructions

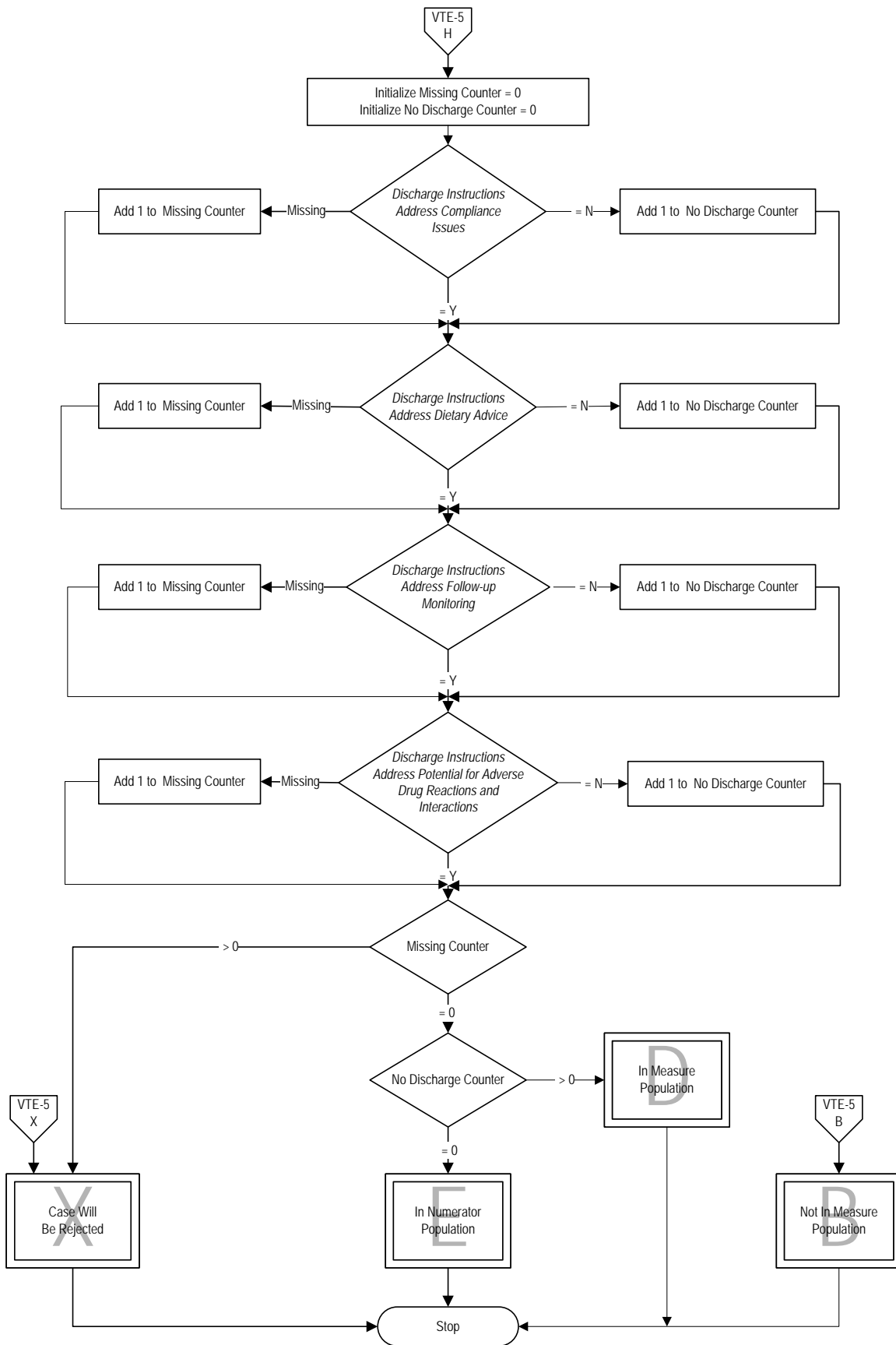
**Numerator:** Patients with documentation that they or their caregivers were given written discharge instructions or other educational material about warfarin that addressed **all** of the following:

1. compliance issues
2. dietary advice
3. follow-up monitoring
4. potential for adverse drug reactions and interactions

**Denominator:** Patients with confirmed VTE discharged on warfarin therapy



**Variable Key:**  
Missing Counter  
No Discharge Counter



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2. dietary advice
3. follow-up monitoring
4. potential for adverse drug reactions and interactions

**Denominator:** Patients with confirmed VTE discharged on warfarin therapy.

**Variable Key:** Missing Counter, No Discharge Counter

1. Start processing. Run cases that are included in the VTE Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.
2. Check ICD-9-CM-Principal or Other Diagnosis Code
  - a. If none of the ICD-9-CM Principal or Other Diagnosis Code is on Table 7.03 or 7.04 the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
  - b. If at least one of the ICD-9-CM Principal or Other Diagnosis Code is on Table 7.03 or 7.04, continue processing and proceed to Clinical Trial.
3. Check Clinical Trial
  - a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
  - c. If Clinical Trial equals No, continue processing and proceed to Discharge Disposition.
4. Check Discharge Disposition
  - a. If Discharge Disposition is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Discharge Disposition equals 3, 4, 5, 6, or 7, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
  - c. If Discharge Disposition equals 1, 2, or 8, continue processing and proceed to VTE Diagnostic Test.
5. Check VTE Diagnostic Test
  - a. If VTE Diagnostic Test is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

- b. If VTE Diagnostic Test equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
  - c. If VTE Diagnostic Test equals Yes, continue processing and proceed to VTE Confirmed.
- 6. Check VTE Confirmed
  - a. If VTE Confirmed is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If VTE Confirmed equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
  - c. If VTE Confirmed equals Yes, continue processing and proceed to Warfarin Prescribed at Discharge.
- 7. Check Warfarin Prescribed at Discharge
  - a. If Warfarin Prescribed at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Warfarin Prescribed at Discharge equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
  - c. If Warfarin Prescribed at Discharge equals Yes, continue processing and initialize Missing and No Discharge Counters.
  - d. Initialize Missing Counter and No Discharge Counter. Set both counters equal to zero. Continue processing and proceed to Discharge Instructions Address Compliance Issues.
- 8. Check Discharge Instructions Address Compliance Issues
  - a. If Discharge Instructions Address Compliance Issues is missing, add 1 to the Missing Counter. Continue processing and proceed to Discharge Instructions Address Dietary Advice.
  - b. If Discharge Instructions Address Compliance Issues equals Yes, continue processing and proceed to Discharge Instructions Address Dietary Advice.
  - c. If Discharge Instructions Address Compliance Issues equals No, add 1 to the No Discharge Counter. Continue processing and proceed to Discharge Instructions Address Dietary Advice.
- 9. Check Discharge Instructions Address Dietary Advice
  - a. If Discharge Instructions Address Dietary Advice is missing, add 1 to the Missing Counter. Continue processing and proceed to Discharge Instructions Address Follow-up Monitoring.
  - b. If Discharge Instructions Address Dietary Advice equals No, add 1 to the No Discharge Counter. Continue processing and proceed to Discharge Instructions Address Follow-up Monitoring.



- c. If Discharge Instructions Address Dietary Advice equals Yes, continue processing and proceed to Discharge Instructions Address Follow-up Monitoring.
10. Check Discharge Instructions Address Follow-up Monitoring
- a. If Discharge Instructions Address Follow-up Monitoring is missing, add 1 to the Missing Counter. Continue processing and proceed to Discharge Instructions Address Potential for Adverse Drug Reactions and Interactions.
  - b. If Discharge Instructions Address Follow-up Monitoring equals No, add 1 to the No Discharge Counter. Continue processing and proceed to Discharge Instructions Address Potential for Adverse Drug Reactions and Interactions.
  - c. If Discharge Instructions Address Follow-up Monitoring equals Yes, continue processing and proceed to Discharge Instructions Address Potential for Adverse Drug Reactions and Interactions.
11. Check Discharge Instructions Address Potential for Adverse Drug Reactions and Interactions
- a. If Discharge Instructions Address Potential for Adverse Drug Reactions and Interactions is missing, add 1 to the Missing Counter. Continue processing and proceed to Missing Counter.
  - b. If Discharge Instructions Address Potential for Adverse Drug Reactions and Interactions equals No, add 1 to the No Discharge Counter. Continue processing and proceed to Missing Counter.
  - c. If Discharge Instructions Address Potential for Adverse Drug Reactions and Interactions equals Yes, continue processing and proceed to Missing Counter.
12. Check Missing Counter
- a. If the Missing Counter is greater than zero, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If the Missing Counter equals zero, continue processing and proceed to the No Discharge Counter.
13. Check No Discharge Counter
- a. If the No Discharge Counter is greater than zero, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - b. If the No Discharge Counter equals zero, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.