

Measure Information Form

Measure Set: Surgical Care Improvement Project (SCIP)

Set Measure ID#: SCIP-VTE-2

Performance Measure Name: Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis Within 24 Hours Prior to Surgery to 24 Hours After Surgery

Description: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to *Surgical Incision Time* to 24 hours after *Surgery End Time*.

Rationale: There are over 30 million surgeries performed in the United States each year. Despite the evidence that VTE is one of the most common postoperative complications and prophylaxis is the most effective strategy to reduce morbidity and mortality, it is often underused. The frequency of venous thromboembolism (VTE), that includes deep vein thrombosis and pulmonary embolism, is related to the type and duration of surgery, patient risk factors, duration and extent of postoperative immobilization, and use or nonuse of prophylaxis. According to Heit et al, 2000, surgery was associated with over a twenty-fold increase in the odds of being diagnosed with VTE. Studies have shown that appropriately used thromboprophylaxis has a positive risk/benefit ratio and is cost effective. Prophylaxis recommendations for this measure are based on selected surgical procedures from the 2004 American College of Chest Physicians guidelines.

Timing of prophylaxis is based on the type of procedure, prophylaxis selection, and clinical judgment regarding the impact of patient risk factors. The optimal start of pharmacologic prophylaxis in surgical patients varies and must be balanced with the efficacy-versus-bleeding potential. Due to the inherent variability related to the initiation of prophylaxis for surgical procedures, 24 hours prior to surgery to 24 hours post surgery was recommended by consensus of the SCIP Technical Expert Panel in order to establish a timeframe that would encompass most procedures.

Type of Measure: Process

Improvement Noted As: An increase in the rate

Numerator Statement: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to *Surgical Incision Time* to 24 hours after *Surgery End Time*

Included Populations: Not applicable

Excluded Populations: None

Data Elements:

- *Documented Bleeding Risk*
- *Neuraxial Anesthesia*
- *VTE Prophylaxis*
- *VTE Timely*

Denominator Statement: All selected surgery patients

Included Populations:

- *ICD-9-CM Principal Procedure Code* of selected surgeries (refer to Appendix A, Table 5.10 for ICD-9-CM codes)
AND
- *ICD-9-CM Principal Procedure Code* of selected surgeries (refer to Appendix A, Table 5.17-5.24 for ICD-9-CM codes)

Excluded Populations:

- Patients who are less than 18 years of age
- Patients with procedures performed entirely by laparoscope
- Patients whose total surgery time is less than or equal to 30 minutes
- Patients who stayed less than or equal to 24 hours postop
- Burn patients (Refer to Appendix A, Table 5.14 for ICD-9-CM codes)
- Patients who are on warfarin prior to admission
- Patients with contraindications to both mechanical and pharmacological prophylaxis
- Patients whose ICD-9-CM principal procedure occurred prior to the date of admission

Data Elements:

- *Admission Date*
- *Birthdate*
- *Contraindication to VTE Prophylaxis*
- *Discharge Date*
- *Discharge Time*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*
- *Preadmission Warfarin*
- *Surgery End Date*
- *Surgery End Time*
- *Surgery Start Date*
- *Surgical Incision Time*
- *VTE Laparoscope*

Risk Adjustment: No

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

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: Measure rates for SCIP-VTE-2 should be analyzed in conjunction with SCIP-VTE-1 in order to identify focus areas for quality improvement. Low measure rates may indicate the need for staff education or evaluation of organizational factors and processes of care. Note that rates for SCIP-VTE-2 may be lower than those for SCIP-VTE-1 as a result of more stringent criteria. SCIP-VTE-2 requires documentation that prophylaxis was ordered and actually started, whereas SCIP-VTE-1 requires only documentation of an order.

Sampling: Yes, for additional information see the Sampling Section.

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

Selected References:

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- Anderson FA, Wheeler HB, Goldberg RJ, et al. Physician practices in the prevention of VTE. *Ann Intern Med.* 1991;115:591-595. PMID: 1892330.
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- Stratton MA, Anderson FA, Bussey HI, Caprini J. Prevention of venous thromboembolism: adherence to the 1995 American College of Chest Physicians Consensus Guidelines for Surgical Patients. *Arch Intern Med.* 2000;160:334-3. PMID: 10668835.
- Amarigiri SV, Lees TA. Elastic compression stockings for prevention of deep vein thrombosis. *The Cochrane Library*, Issue 1, 2001. PMID: 10908501.
- Iorio A, Agnelli G. Low-molecular-weight and unfractionated heparin for prevention of venous thromboembolism in neurosurgery: a meta-analysis. *Arch Intern Med.* 2000;160:2327-2332. PMID: 10927730.
- Goldhaber SZ, Dunn K, MacDougall RC. New onset of venous thromboembolism among hospitalized patients at Brigham and Women's Hospital is caused more often by prophylaxis failure than by withholding treatment. *Chest.* 2000;118:1680-1684. PMID: 11115458.
- O'Donnell M, Weitz JI. Thromboprophylaxis in surgical patients. *Can J Surg.* 2003; 46(2): 129-135. PMID: 12691354.
- Janku GV, Paiement GD, Green HD. Prevention of venous thromboembolism in orthopaedics in the United States. *Clin Ortho & Related Research.* 1996:313-321. PMID: 8998892.

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- Palmer AJ, Schramm W, Kirchhof B, et al. Low molecular weight heparin and unfractionated heparin for prevention of thrombo-embolism in general surgery: a meta-analysis of randomised clinical trials. *Haemostasis*. 1997;27:65-74. PMID: 9212354.
- Bratzler DW, Raskob GE, Murray CK, et al. Underuse of venous thromboembolism prophylaxis for general surgery patients: physician practices in the community hospital setting. *Arch Intern Med*. 1998;158:1909-1912. PMID: 9759687.
- Vanek VW. Meta-analysis of effectiveness of intermittent pneumatic compression devices with a comparison of thigh-high to knee-high sleeves. *American Surgeon*. 1998;64:1050-1058. PMID: 9798767.
- Hull RD, Brant RF, Pineo GF, et al. Preoperative vs postoperative initiation of low-molecular-weight heparin prophylaxis against venous thromboembolism in patients undergoing elective hip replacement. *Arch Intern Med*. 1999;159:137-141. PMID: 9927095.
- Raskob GE, Hirsh J. Controversies in timing of the first dose of anticoagulant prophylaxis against venous thromboembolism after major orthopedic surgery. *Chest*. 2003 Dec;124(6 Suppl):379S-385S.
- Heit JA, Silverstein MD, Mohr DN, Petterson TM, O'Fallon WM, Melton LJ, III. Risk factors for deep vein thrombosis and pulmonary embolism: a population-based case-control study. *Arch Intern Med* 2000;160:809-815.

VTE Prophylaxis Selection for Surgery	
Surgery, Level of Risk	Recommended Prophylaxis
<input type="checkbox"/> Intracranial Neurosurgery Appendix A, Table 5.17	Any of the following: Intermittent pneumatic compression devices (IPC) with or without graduated compression stockings (GCS) Low-dose unfractionated heparin (LDUH) Low molecular weight heparin (LMWH)* LDUH or LMWH* combined with IPC or GCS * Current guidelines recommend <i>postoperative</i> low molecular weight heparin for Intracranial Neurosurgery.
<input type="checkbox"/> Elective Spinal Surgery Appendix A, Table 5.18	Any of the following: Low-dose unfractionated heparin (LDUH) Low molecular weight heparin (LMWH) Intermittent pneumatic compression devices (IPC) Graduated compression stockings (GCS) IPC combined with GCS LDUH or LMWH combined with IPC or GCS
<input type="checkbox"/> General Surgery* Appendix A, Table 5.19	Any of the following: Low-dose unfractionated heparin (LDUH) Low molecular weight heparin (LMWH) LDUH or LMWH combined with IPC or GCS
<input type="checkbox"/> General Surgery with high risk for bleeding Appendix A, Table 5.19	Any of the following: Graduated Compression stockings (GCS) Intermittent pneumatic compression (IPC)
<input type="checkbox"/> Gynecologic Surgery Appendix A, Table 5.20	Any of the following: Low-dose unfractionated heparin (LDUH) Low molecular weight heparin (LMWH) Intermittent pneumatic compression devices (IPC) LDUH or LMWH combined with IPC or GCS
<input type="checkbox"/> Urologic Surgery Appendix A, Table 5.21	Any of the following: Low-dose unfractionated heparin (LDUH) Low molecular weight heparin (LMWH) Intermittent pneumatic compression devices (IPC) Graduated compression stockings (GCS) LDUH or LMWH combined with IPC or GCS
<input type="checkbox"/> Elective Total Hip Replacement * Appendix A, Table 5.22	Any of the following started within 24 hours of surgery: Low molecular weight heparin (LMWH) Factor Xa Inhibitor (Fondaparinux) Warfarin

**Patients who receive neuraxial anesthesia (without documentation of high risk of bleeding) may pass the performance measure if they receive appropriate pharmacologic prophylaxis or if they receive mechanical prophylaxis alone.*

VTE Prophylaxis Selection for Surgery (Cont.)	
Surgery, Level of Risk	Recommended Prophylaxis
<input type="checkbox"/> Elective Total Knee Replacement Appendix A, Table 5.23	Any of the following: Low molecular weight heparin (LMWH) Factor Xa Inhibitor (Fondaparinux) Warfarin Intermittent pneumatic compression devices (IPC)
<input type="checkbox"/> Hip Fracture Surgery* Appendix A, Table 5.24	Any of the following: Low-dose unfractionated heparin (LDUH) Low molecular weight heparin (LMWH) Factor Xa Inhibitor (Fondaparinux) Warfarin
<input type="checkbox"/> Elective Total Hip Replacement with high risk for bleeding Appendix A, Table 5.22 <input type="checkbox"/> Hip Fracture Surgery with high risk for bleeding Appendix A, Table 5.24	Any of the following: Graduated Compression stockings (GCS) Intermittent pneumatic compression (IPC)

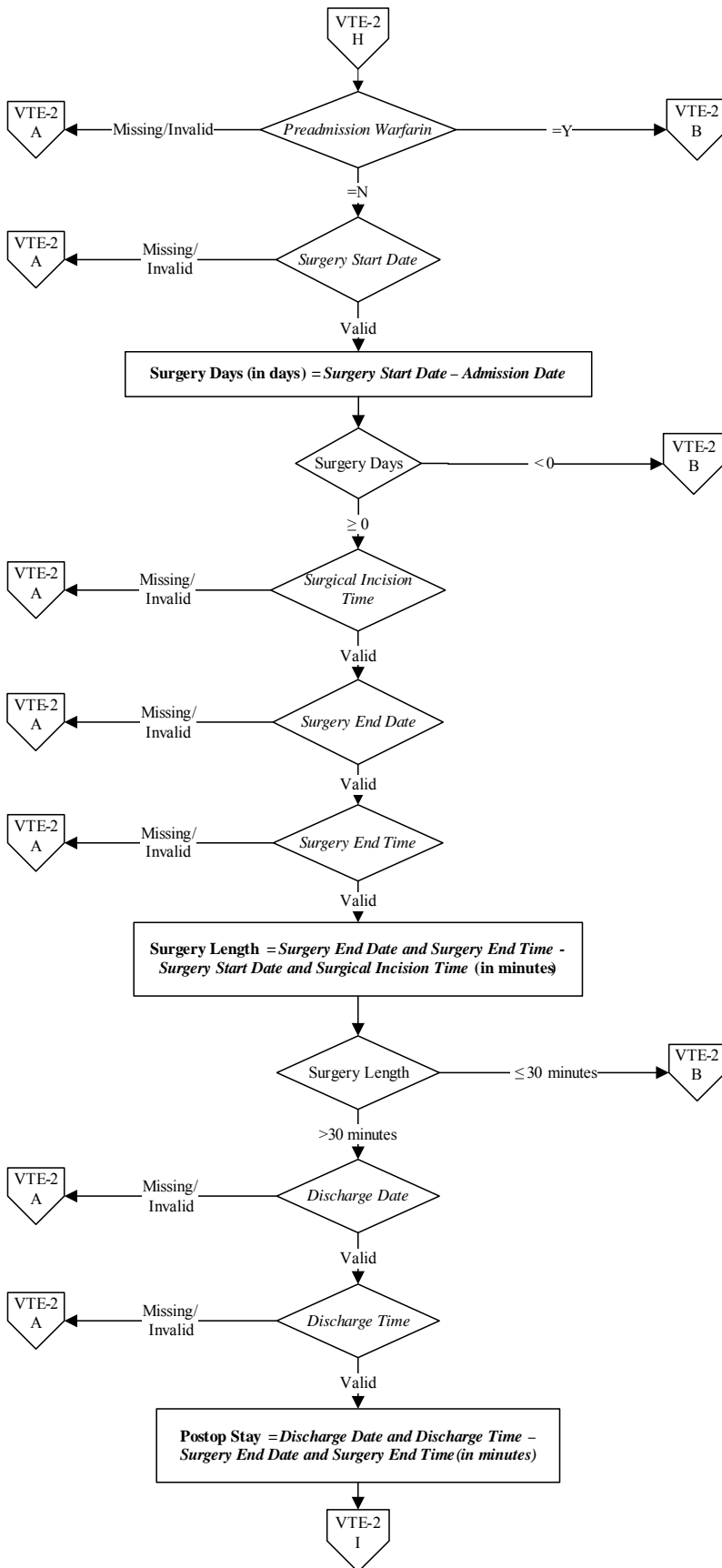
**Patients who receive neuraxial anesthesia (without documentation of high risk of bleeding) may pass the performance measure if they receive appropriate pharmacologic prophylaxis or if they receive mechanical prophylaxis alone.*

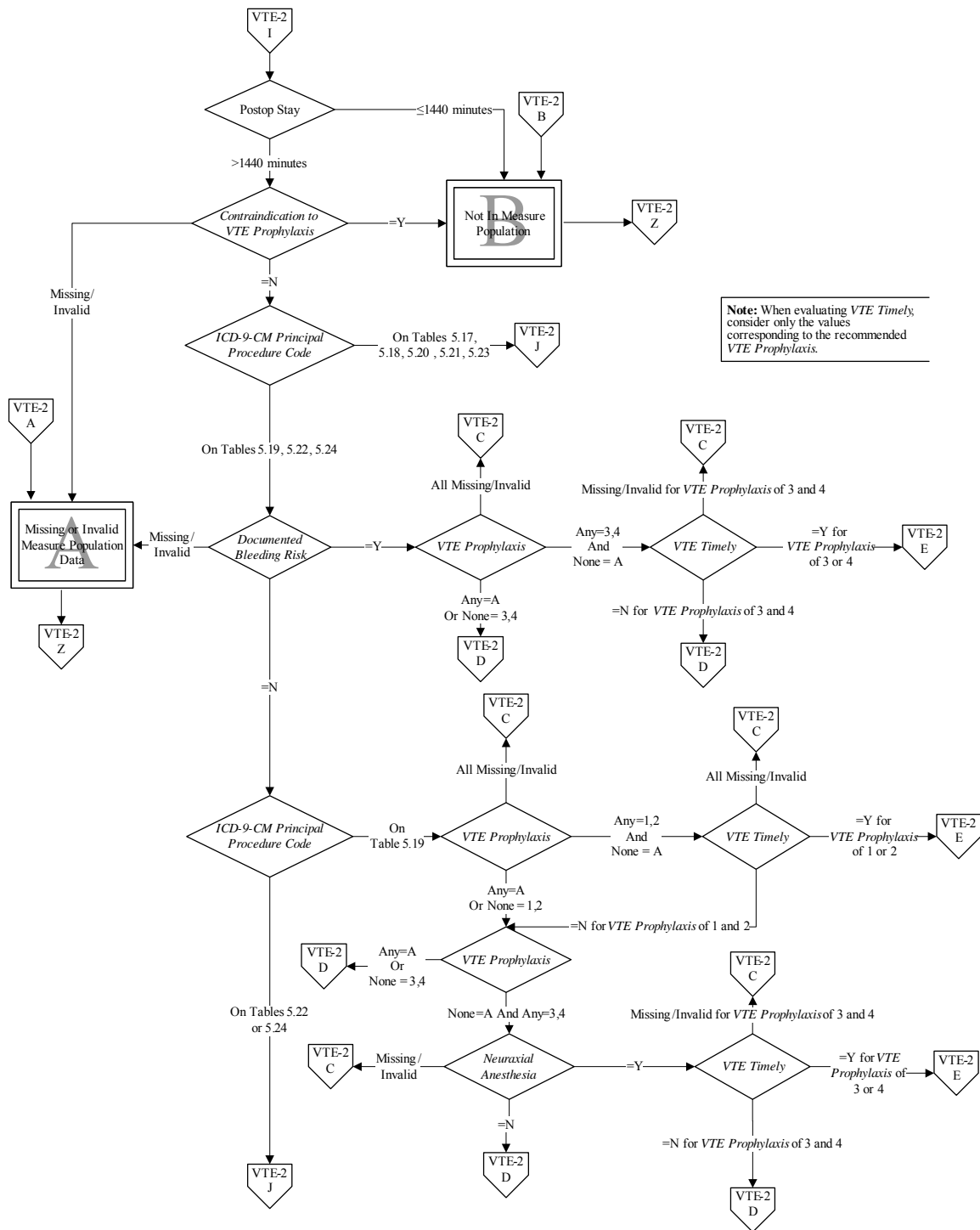
SCIP-VTE-2: Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis Within 24 Hours Prior to Surgery to 24 Hours After Surgery

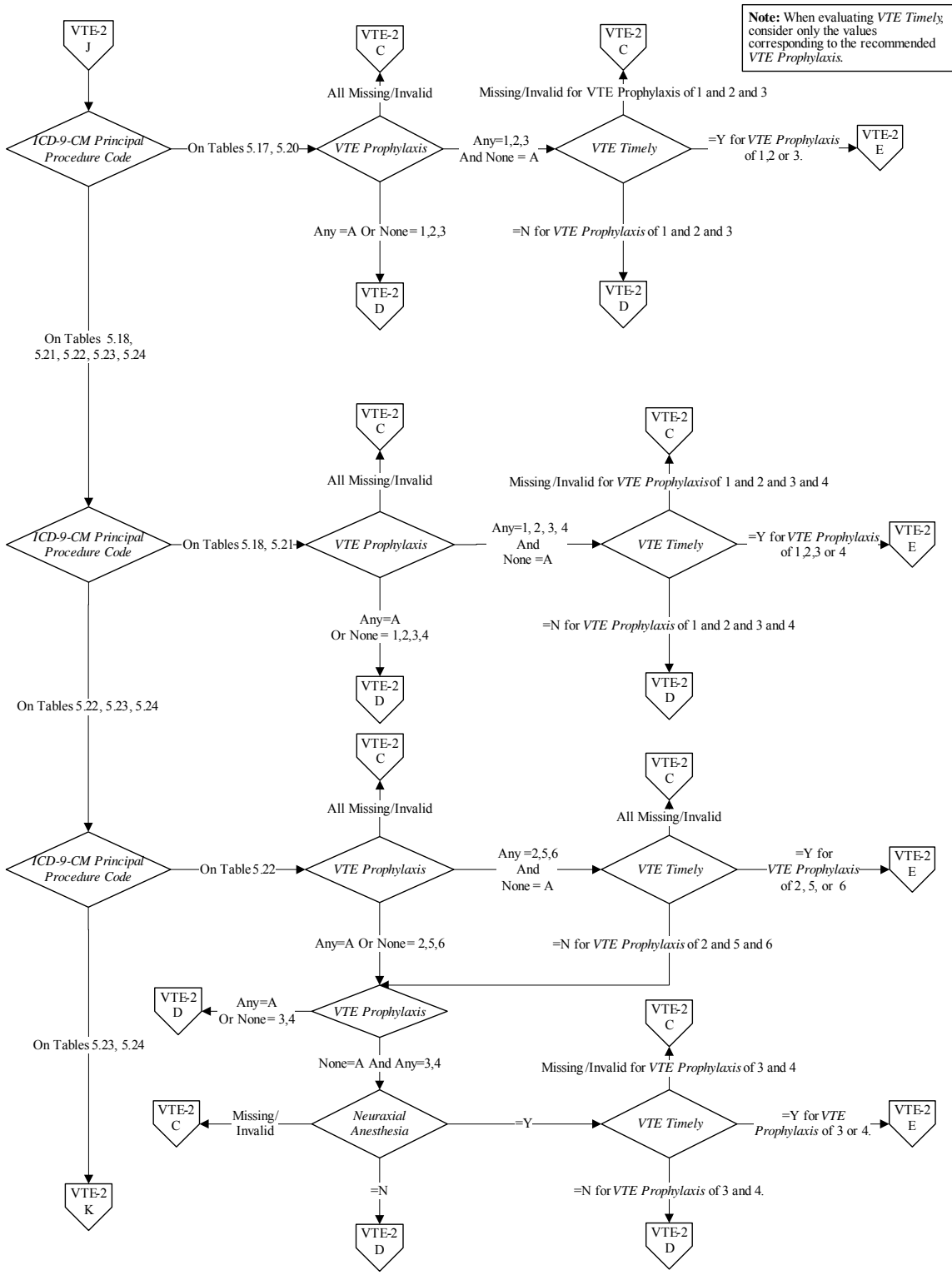
Numerator: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis 24 hours prior to *Surgical Incision Time* to 24 hours after *Surgery End Time*

Denominator: All selected surgery patients .









Note: When evaluating *VTE Timely* consider only the values corresponding to the recommended *VTE Prophylaxis*

