Venous Thromboembolism
National Hospital
Inpatient Quality Measures
Presentation Overview

• Review venous thromboembolism as a new mandatory measure set

• Outline measures with exclusions and documentation requirements

• Provide quality improvement strategies to prevent venous thromboembolism
VTE Measures

VTE – 1  Venous Thromboembolism Prophylaxis
VTE – 2  Intensive Care Unit Venous Thromboembolism Prophylaxis
VTE – 3  Venous Thromboembolism Patients with Anticoagulation Overlap Therapy
VTE – 4  Venous Thromboembolism Patients Receiving Unfractionated Heparin (UFH) with Dosages/Platelet Count Monitoring by Protocol or Nomogram
VTE – 5  Venous Thromboembolism Warfarin Therapy Discharge Instructions
VTE – 6  Hospital Acquired Potentially-Preventable Venous Thromboembolism
VTE – 1

VTE Prophylaxis
VTE – 1 Rationale

• Hospitalized patients at high-risk for VTE may develop an asymptomatic deep vein thrombosis (DVT), and die from pulmonary embolism (PE) even before the diagnosis is suspected

• More than 2 million Americans develop a VTE each year\(^1\)

\(^1\text{www.arqh.gov}\)
VTE – 1 Description

• Prescriber must assess and order VTE prophylaxis in all inpatients >18 years upon **ADMISSION** and within 24 hours
  – Prescribers will perform assessment in CPOE
  – The day of or the day after hospital admission OR surgery end date, for surgeries that start the day of OR the day after hospital admission

• Contraindications
  – Prescriber must assess if contraindications exist to mechanical and pharmacological prophylaxis
VTE – 1 Required Physician Documentation

• Patient/family refusal
  – May be documented by a nurse or physician
  – Must be in the same time frame as prophylaxis
  – Refusal of one type of prophylaxis covers all types
    • Example - If refuse heparin, no need for the documentation of the refusal of mechanical prophylaxis
VTE – 1 Required Documentation

Under Patient Summary nurses can view whether a prescriber has ordered VTE prophylaxis.

If no VTE prophylaxis ordered or no required documentation exists as to rationale for no prophylaxis upon admission, nurse should contact prescriber to obtain appropriate order and/or documentation.
VTE – 1 Frequent Missed Opportunities

- Patient has a documented contraindication to pharmacologic prophylaxis
  - Mechanical prophylaxis not addressed
  - Mechanical prophylaxis started 2 or more days after admission

- Ambulation inferred to be a reason for no prophylaxis
  - Need documentation as to why both methods not used
Prescriber VTE Risk Assessment
Prescriber VTE Risk Assessment

Document VTE Risk Level

Document the VTE risk level for this patient

- Low risk
- Moderate risk
- High risk

VTE Prophylaxis Contraindicated?

- See further documentation
- No

LOW RISK
- Minor surgery (same day surgery or O.R. time less than 30 minutes) in mobile patients less than 50 years old
- Fully mobile medical patient less than 50 years old with no additional risk factors AND expected LOS less than 2 days

Therapeutic recommendation: No mechanical or pharmacological prophylaxis. Early and regular ambulation recommended. Anti-embolism stockings (TED hose) as clinically appropriate

MODERATE RISK
- All patients NOT identified as LOW or HIGH RISK
- Consider whether patients having two or more risk factors should be treated as HIGH RISK (risk factors might include: medically ill, bedrest, obesity, dehydration, malignancy, general or urologic surgery, open GYN surgery, heart failure, inflammatory bowel disease, active rheumatic disease, hormonal replacement or estrogen-based contraceptive use, central venous catheter, pulmonary disease, sickle cell disease, nephrotic syndrome, etc.)

Therapeutic recommendation: Pharmacological prophylaxis (Note: Mechanical prophylaxis should be substituted if pharmacologic prophylaxis is contraindicated)

HIGH RISK
- Elective hip or knee arthroplasty
- Hip, knee, or pelvic fracture
- Acute spinal cord injury with paresis
- Multiple major trauma
- Abdominal or pelvic surgery for cancer
- Previous history of thromboembolism or known thrombophilic condition

Therapeutic recommendation: Pharmacological Prophylaxis AND Mechanical Prophylaxis
Prescriber VTE Risk Assessment
VTE - 2

ICU VTE Prophylaxis
VTE – 2 Rationale

- Criteria for admission to the ICU itself, puts patients at an increased risk for developing VTE
  - Subsequent increased risk of morbidity from PE

- Risk factors can be related to the acute illness present

- Risk factors may be acquired during the ICU admission
  - From subsequent medical treatments
    - Limitations of mobility
    - Presence of central venous lines
    - Mechanical ventilation and subsequent pharmacological paralysis
VTE – 2 Description

- Patients who received VTE prophylaxis, OR have documentation why no VTE prophylaxis was given
  - The day of or the day after ICU admission (or transfer)
  - The day of or the day after surgery end date for surgeries that start the day of or the day after ICU admission (or transfer)
- Excluded populations: None
VTE – 2 Expectations

- ICU patients will receive some form of VTE prophylaxis
  - Except if no overnight stay, OR
  - Reason for no VTE prophylaxis given

- Starting on ICU admission date or day after admission
VTE - 3

VTE Patients with Anticoagulation Overlap Therapy
VTE – 3 Rationale

• For patients who present with a confirmed acute VTE, parenteral anticoagulation is the first line of therapy
  – Due to the rapid onset of action unfractionated heparin and enoxaparin* (Lovenox®) these are given immediately after diagnosis

• Warfarin can be initiated on the first day of treatment after the first dose of a parenteral anticoagulant has been given
  – Warfarin requires overlap due to prolonged onset of action

* Enoxaparin is usually the choice for overlap therapy except for patients with renal impairment, contraindications or at high risk of bleeding needing rapid reversal
VTE – 3 Description

- For patients who received fewer than five days of overlap therapy
  - Should be discharged on both medications, OR
  - Have a reason for discontinuation of parenteral therapy
- Overlap therapy should be administered for at least five days
  - With an international normalized ratio (INR) greater than or equal to 2 prior to discontinuation of the parenteral anticoagulation therapy,
  - Discharged on both medications, OR
  - Have a reason for discontinuation of parenteral therapy
- Reason for discontinuation of overlap therapy or parenteral therapy must be documented on the day it was discontinued

- For patients given rivaroxaban (Xarelto®) there is no need to overlap with parenteral agents
VTE – 3 Parenteral Anticoagulants

- Direct Thrombin Inhibitors:
  - Agatroban (Acova®), Bivalirudin (Angiomax®)

- Low Molecular Weight Heparins:
  - Enoxaparin (Lovenox®)

- Unfractionated Heparin – IV or SQ

- Factor Xa Inhibitor:
  - Fondaparinux Sodium (Arixtra®) – non-formulary; only for patients with heparin-induced thrombocytopenia
VTE – 3 Best Practice

- Overlap warfarin with parenteral anticoagulants until
  - 5 days of overlap therapy AND
  - INR greater than or equal to 2.0
    - If INR less than 2.0 after 5 days, continue overlap therapy

- The recommendation that heparins and warfarin overlap for a five-day period is based on pharmacokinetic, pharmacologic, pathophysiologic, and clinical evidence\(^1\)

\(^1\)Dis Mon 2005; 51:112-115.
VTE – 3 Overlap Therapy

- Sample reasons why overlap therapy was not used must be documented
  - Surgical procedure
  - Bleeding complications
  - Patient refused overlap therapy

- Sources for overlap therapy
  - Physician documentation
  - Nursing documentation
  - Medication administration record
VTE – 4

VTE Patients Receiving Unfractionated Heparin with Dosages/Platelet Count Monitoring by Protocol or Nomogram
VTE – 4 Rationale

• Heparin is commonly involved in adverse drug events

• Sub-therapeutic and supratherapeutic levels can lead to thromboembolic or bleeding complications that may increase the patient’s length of stay

• The use of weight-based nomograms has increased the likelihood that a therapeutic partial prothromboplastin time (aPTT) will be achieved within the first 24 to 48 hours of therapy
Heparin-induced thrombocytopenia (HIT) occurs more commonly in patients who receive UFH than in those who receive low molecular weight heparin.

Platelet counts generally begin to fall 5-10 days after the initiation of heparin therapy.

Prompt recognition of HIT is important so that heparin can be discontinued and the risk of venous and arterial thrombosis minimized.

To detect HIT, platelet count monitoring is recommended for all patients treated with UFH.

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1 Blood. 2005 June; 106:2710-2715.

2 Chest 2012;141(2_suppl):e495S-e530S.
VTE – 4 UFH Therapy

- Heparin Infusion powerplan is available
VTE - 5

VTE Warfarin Therapy Discharge Instructions
VTE – 5 Rationale

- In anticoagulation therapy programs, patient education is a vital component to achieve successful outcomes, and reducing hospital readmission rates

- Warfarin is commonly involved in adverse drug events
  - Clot formation
  - Hemorrhage

- The use of standardized practices for anticoagulation therapy that includes patient/caregiver involvement\(^1\)
  - May reduce the risk of adverse drug events

\(^1\)Chest 2006; 129; 1155-1166.
VTE – 5 Documentation

- Warfarin education must be performed for all patients discharged on warfarin
- Must be **written** materials to take home – education materials located in Cerner
  - Oral discussion is not enough
  - Can assume a copy was given to the patient if the material has
    - Patient’s name
    - Medical record number
    - Signature (can be from physician, nurse, pharmacist, pharmacy student/resident)
- The patient can refuse instructions, but this must be documented
- Patients should not be discharged until counseled. Nurse to call pharmacy.
VTE – 5 Learning Outcomes

- Indication why warfarin/Coumadin® has been prescribed and that it is a blood thinner
- The importance of taking exact dosage at the same time each day and action to take if a dose is missed or an extra dose is taken
- Warfarin increases the risk of bleeding. Seek immediate medical attention for severe bleeding or for serious falls
- The signs of disease recurrence
- Contact sports and certain activities may cause serious injury and require avoidance
VTE – 5 Learning Outcomes

- Importance of maintaining regularly scheduled blood tests and the name and normal limits of the blood tests performed (i.e., PT/INR)
- Warfarin interacts with other drugs/herbals including alcohol and to consult prescriber before initiating or discontinuing any medications or over-the-counter drug(s)
- Diet, medications, illness and changes in life-style can affect the action of warfarin and PT/INR level. A consistent amount of foods with vitamin K is advised rather than avoidance and to consult healthcare professional before making any major dietary changes
- Importance of carrying identification stating the patient is on warfarin
VTE – 5 Learning Outcomes

- Inform healthcare provider of warfarin intake if any planned surgeries or other medical/dental procedures will be performed.

- It is normal to use an injectable anticoagulant together with warfarin until the INR is in range and stable.

- Continue warfarin until instructed to stop by their management provider.

- Follow-up monitoring is critical with warfarin/INR clinic or primary care physician within 3 days to schedule PT/INR lab post-discharge.
VTE – 5 Compliance Issues

• Must advise the importance of both
  – Taking warfarin as instructed, AND
  – Monitoring warfarin intake with scheduled INR checks
VTE – 5 Dietary Advice

• Must advise both of the following
  – May consume a “consistent amount” of foods with Vitamin K
    • Rather than avoidance of them
  – Avoidance of a major change in diet or consulting a health professional before a change
VTE – 5 Follow-up Monitoring

- Must document the plan to monitor warfarin after discharge
  - Office, clinic, home health
  - Scheduled date of next INR check

- Jackson Memorial Hospital’s (JMH) INR clinic is located in ACC West
  - Operating hours: 7 am to Noon
  - Accepted status includes: Medicaid, JHM health plan, Jackson card, and self-pay
  - For insured patients not eligible for JMH INR clinic, physician must advise patient to schedule a follow-up clinic appointment with their primary care physician (PCP)
  - In the case the patient has no PCP, advise alternative option
VTE – 5 Discharge Instructions
Address Potential for the following:

- Adverse Drug Reactions and Interactions

- Required statements
  - Diets and medications can affect the INR
  - Do not start or stop any medications except on the advice of a physician or pharmacist
  - Warfarin increases the risk of bleeding
VTE – 5 Acceptable Formats

• Copy of instructions given must be in the record
  – Requires documentation in the electronic health record that patient was counseled and materials provided to take home
  – Education material will be printed prior to discharge
  – Patient signature not required except to show the patient received a copy
  – Must be signed by a nurse, physician, pharmacist, or pharmacy student
VTE – 6

Hospital Acquired Potentially Preventable VTE
VTE – 6 Rationale

• Preventable VTE is defined as objectively diagnosed deep vein thrombosis or pulmonary emboli that occurred in a setting in which thromboprophylaxis was indicated but was either1
  – Administered inadequately, OR
  – Not administered at all

• In spite of formal guidelines, and recommendations for preventative care, pulmonary embolism is still the most common preventable cause of death among hospitalized patients2

2 JAMA 2003; 290:1868-1874.
VTE – 6 Rationale

- The incidence of preventable VTE among hospitalized patients contributes to extended hospital stays and the rising cost of health care
- VTE events are preventable events among hospitalized patients; must assure patient risk factors are assessed and prophylaxis ordered by prescriber
- Zhan 20031
  - The second most common medical complication of postoperative patients,
  - The second most common cause of excess LOS, AND
  - The third most common cause of excess mortality and excess charges

1JAMA 2003; 290:1868-1874.
VTE – 6 Commonly Overlooked

- Those who often do not receive adequate VTE prophylaxis
  - Moderate risk patients
  - Conservatively managed patients
VTE – 6 Present on Admission

- Physician, NP, PA must document that the VTE was diagnosed or suspected on admission
  - Patient can be admitted on VTE treatment
  - Diagnostic test ordered on admit date

- Cannot document present on admission if past the admission period
VTE – 6 Documentation

• Physician, PA, NP, Pharmacist
  – Must address contraindications to both mechanical and pharmacologic prophylaxis

• Patient refusal of prophylaxis can be documented by the physician, nurse, or in the medication administration record

• Must clearly link the reason prophylaxis was not used
  – For both types
  – Mechanical prophylaxis must address both extremities
VTE – 6 Documentation

• What does not count as a reason why prophylaxis was not given
  – History of bleeding
  – Bleeding risk noted in informed consent process
  – Reinfusion of blood products through a blood recovery system
  – “Patient at low risk for VTE”
  – “VTE prophylaxis not needed”
Venous Thromboembolism Inpatient Quality Measures