Pharmacist-Driven Venous Thromboembolism (VTE) Prophylaxis Program

- Anh Nguyen, Pharm.D
  Clinical Pharmacist, Admission Team Leader
- Byung Im, Pharm.D
  Clinical Pharmacist, Anticoagulation Team Leader

Objectives

- Understand the importance and impact of VTE prophylaxis program.
- Utilize available resources to develop your own VTE prophylaxis program.
- Learn key lessons in implementing your VTE prophylaxis program successfully.
- Level II Adult & Pediatric Trauma Center
- 362 Single Patient Rooms (Hospital)
- 77 Licensed Beds (Psychiatric Treatment Facility)
- 12 Operating Rooms
- Intensive Care Units (Adult, Pediatric and Neonatal)
- Pharmacy with Clinical Pharmacist on Site
- Complete Radiology Services including MRI & CT Scans
- Occupational & Physical Therapy Services
- Complete Clinical Laboratory Services
- Complete Pulmonary Services including Hyperbaric Oxygen Treatments
- Complete Diagnostic Services including EEG, EKG and Echo
- Full Pediatric Services
- Birthing Rooms
- Emergency Room and Trauma Center
- 24 Hour Physician Staffing
- Adjacent Helipad
- Immediate OR Access
- Abuse Services
- Child Assessment Team (CAN Team)
- Elder Abuse
- Drug Endangered Children
- SART (Sexual Assault Response Team)
- Childhood Injury Prevention Center
System Change

- Transactional Change
  - Individual tasks, skills, abilities

- Transformational Change
  - Altered paradigm
  - Shift in values
  - Reform in beliefs
• Cost Control is **Transactional**

• Quality Improvement is **Transformational**

“Transformed means that when times are tough, we invest more in quality”

Charles Buck
– retired GE executive
Roles of the RCRMC Pharmacists

- Inpatient
  - Admission Pharmacists
  - ED Pharmacists
  - Anticoagulation Pharmacists
  - Kinetics Pharmacists
  - ID Pharmacists
  - Unit Based Pharmacists
  - Specialty Service Pharmacists
  - Core Measures Pharmacists
  - Discharge Pharmacists

- Outpatient
  - Ambulatory Care Pharmacists
  - Mail Order Pharmacists
  - Telephonic Disease Management Pharmacists
  - Outpatient Pharmacists
  - IT Pharmacists
  - Managed Care Pharmacists
  - Medication Safety Pharmacists

About Venousthromboembolism (VTE)
Background

- Between 200,000 and 300,000 US patients die of VTE each year (surgery-related and non–surgery-related)—more deaths than from AIDS, breast cancer, and traffic accidents combined*
- VTE causes an approximate 10% hospital readmission rate by day 90 post surgery and results in substantial resource utilization and excess charges


- Over one year, a 300-bed hospital that lacks a systematic approach to VTE prevention can expect roughly 150 cases of hospital-acquired VTE.
- Approximately 50-75 of those cases will be potentially preventable through missed opportunities to provide appropriate prophylaxis.
- Approximately 5 of those patients will die from potentially preventable PE.
- Each hospital-acquired DVT represents an incremental inpatient cost of $10,000, while each PE represents $20,000.

* Jason Stein, MD. Emory University Hospitals
Risk of Deep Vein Thrombosis in Hospitalized Patients
No prophylaxis + routine objective screening for DVT

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Reference: www.ahrq.gov

Background

- High prevalence of hospital-acquired VTE is due to underutilization of prophylactic measures: of 2726 pts who had their DVT diagnosed while hospitalized in the DVT FREE registry, only 1147 (42%) received prophylaxis within the 30 days before diagnosis
Best Practices

- Joint Commissions
- Surgical Care Improvement Project
- AHRQ (Agency for Healthcare Research and Quality)
- Centers for Medicare & Medicare Services

VTE prophylaxis
Objectives of VTE Prophylaxis*

- To provide primary care providers with strategies to reduce morbidity and mortality of adult patients associated with surgical procedures and/or hospitalization
- To increase the percentage of hospitalized patients (18 years of age and older) who are assessed for venous thromboembolism risk within 24 hours of admission
- To increase the percentage of hospitalized patients (18 years of age and older) who are evaluated for venous thromboembolism prophylaxis upon change in level of care, providers, and/or upon discharge
- To increase the percentage of hospitalized patients (18 years of age and older) who are at risk for venous thromboembolism who have received education within 24 hours of admission into inpatient care setting for venous thromboembolism that includes venous thromboembolism risk, signs and symptoms, early and frequent mobilization, and clinically appropriate treatment/prophylaxis methods


Objectives of VTE Prophylaxis*

- To improve the safety of using medications by reducing the likelihood of patient harm associated with the use of anticoagulation therapy in inpatient care setting for patients 18 years of age and older
- To increase the percentage of at-risk hospitalized patients (18 years of age and older) receiving appropriate prophylaxis treatment
- To reduce the risk of complications from pharmacologic prophylaxis for hospitalized and discharged patients 18 years of age and older
- To increase the percentage of surgery patients (18 years of age and older) who receive appropriate venous thromboembolism prophylaxis

General Recommendations

- All patients should have venous thromboembolism risk assessed and addressed upon hospital admission, change in level of care, and discharge
- All patients should have proper education regarding venous thromboembolism risk, signs and symptoms, and treatment/prophylaxis methods available
- All patients should be encouraged to ambulate as early as possible, and as frequently as possible
- All patients with moderate to high risk of venous thromboembolism should have pharmacologic prophylaxis—unless contraindicated


RCRMC Goals for VTE Prophylaxis Program

1. Standardized VTE risk assessment
2. Ensure safe and effective use of pharmacologic VTE prophylaxis
3. Improve patient outcome/Avoid preventable VTE/PE
4. Avoid unnecessary cost associated with preventable VTE/PE
### RCRMC VTE Prophylaxis Program

- Pharmacist evaluates patient’s risk for VTE within 24 hours of admission or surgery using standardized risk assessment form
- Pharmacist consults physician when changes in VTE prophylaxis regimen is recommended
- Pharmacist monitors relevant lab values daily for possible Heparin-Induced Thrombocytopenia (HIT)
- All patients who are on pharmacological VTE prophylaxis have CBC drawn at least every 3 days per Pharmacy Protocol
Role of the RCRMC Pharmacist

Figure 2. Care Delivery for Preventing Hospital-Acquired Venous Thromboembolism

- Patient admitted to hospital
- Care Delivery: Prevention of Hospital-Acquired VTE
- Provider orders appropriate VTE prophylaxis at admission
- Clinical Support Services deliver appropriate VTE prophylaxis
- Change in patient's VTE risk level, complications, or situ/units of care
- Is the patient on appropriate VTE prophylaxis here?
- No VTE of discharge
- Hospital-Acquired VTE

Conceptual Flow Diagram of Care Delivery for Providing VTE Prophylaxis: A number of interrelated steps combine to determine whether a patient, at any given moment, is receiving appropriate VTE prophylaxis.

Date/Time Discipline
Pharmacy

VTE Prophylaxis Per Pharmacy Protocol — Progress Note

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Decision</th>
<th>VTE Prophylaxis Per Pharmacy Protocol — Progress Note</th>
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<tr>
<td>1/6/2012</td>
<td></td>
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### Pharmacy SCIP Performance Measure Reviewed by the Pharmacist

**Post-Surgical VTE Prophylaxis Per Pharmacy Protocol**

**Date/Time Discipline**

Post-Surgical VTE Prophylaxis Per Pharmacy Protocol

**Past Medical History:**

**Past Surgical History:**

**PE:**

- Patient is ambulating
- **SOL On**
- **TED hose On**

**All VTE risk factors visible:**

- Patient is at low risk for VTE

**Contraindication to pharmacological anticoagulants:**

- **Yes**

**Patient currently has VTE prophylaxis orders for:**

- TED/SCD

**Patient is at low risk for VTE**

- **Yes**

**Patient has received pharmacological VTE prophylaxis on:**

- **[Blank]**

**Pharmacist:**

PharmD. Ext

---

### thromboprophylaxis

**VTE risk factors include:**

- **[Blank]**

**Patient is at low risk for VTE**

- **[Blank]**

**Patient has received pharmacological VTE prophylaxis on:**

- **[Blank]**

**Pharmacist:**

PharmC Ex

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### Preoperative Assessment of Venous Thromboembolism Risk

1. **Assess risk score using clinical algorithm**
   - A. **Risk Factors (RF):**
     - **RF with value of 2 points:**
       - Age > 70 years
       - Body mass index (BMI) > 40
       - Severe sepsis (Sepsis w/ > 1 organ failure)
       - **Hospital-acquired infection**
       - **Critical illness**
   - B. **Risk Factors (RF):**
     - **RF with value of 5 points:**
       - Dialysis
       - Chronic smoking
       - **History of VTE**
       - **History of DVT or PE**
       - **Major surgery**
       - **Severe sepsis**
   - C. **RF with value of 10 points:**
     - **High risk**
     - **Moderate risk**
     - **Low risk**

2. **Total Risk Score (1-10)**
   - **Low Risk (1-4):**
     - **Moderate Risk (5-7):**
     - **High Risk (8-10):**

3. **Patient is on therapeutic antiocoagulants. Additional pharmacologic thromboprophylaxis is not required.**

4. **Pharmacist has contributed to pharmacologic therapy.**

**Order for thromboprophylaxis:**

- **Low Risk (1-4):**
  - **Moderate Risk (5-7):**
  - **High Risk (8-10):**

**Contraindications to Pharmacological Prophylaxis:**

- **Active malignancy**
- **Anticoagulation within 2 weeks**
- **DI, SI, or hemodynamic within the last 6 months**
- **Thrombolytic therapy (within 100 LDs)**
- **Corticosteroids (10 mg or more per day)**
- **Active infection of the chest or abdomen**
- **History of trauma or surgery**
- **Coagulopathy**
- **Diabetes mellitus**
- **Hypertension**
- **Heparin-induced thrombocytopenia**
- **Intensive care unit**
- **Vascular access**
- **Obstetric care**

**Pharmacist signature:**

**Print:**

**Phone:**

**Date/Time:**

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VTE Core-Measures

- VTE-1: VTE Prophylaxis
- VTE-2: Intensive Care Unit VTE Prophylaxis
- VTE-3: VTE patients with anticoagulation overlap therapy
- VTE-4: VTE patients receiving unfractionated heparin with dosages/platelet count monitoring by protocol
- VTE-5: VTE discharge instructions
- VTE-6: Incidence of potentially-preventable VTE

<table>
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<th>RCRMC INTERNAL GOAL</th>
<th>TJC COMPARISON FROM UHC</th>
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<td>VTE-1</td>
<td>≥ 90%</td>
<td>≥ 89%</td>
</tr>
<tr>
<td>VTE-2</td>
<td>≥ 94%</td>
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<tr>
<td>VTE-5</td>
<td>≥ 90%</td>
<td>≥ 74%</td>
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<tr>
<td>VTE-6</td>
<td>0%</td>
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TJC = The Joint Commission  UHC = University Health System Consortium
# of Patients Assessed by Pharmacist for VTE Prophylaxis
12-Month Data

*Medical Patients

VTE Core-Measures

# of Patients Assessed by Pharmacist for VTE Prophylaxis

* # pt assessed
Quality Improvement

- Review of any incidence of potentially preventable VTE

- Quarterly review of core measure fall outs
  Identified:
  - Many times due to lack of documentation of administration of prophylactic agents (Mechanical/Pharmacological) → Now included in pharmacy assessment/documentation
  - Falling out of time window → Twice daily reviewing of surgical cases. Working with nursing to ensure proper administration time
  - SCDs not placed → Pharmacist instruct RN to place and document placement within 24 hours of admission

Other Issues

- SCDs not placed when ordered possibly due to nursing not focusing on admitting/transfer orders
- SCDs still not placed within 24hrs of admission even after RN is instructed to do so by pharmacist possibly due to lack of supply vs. negligence
- Patients being missed to assessment due to long stays in EDOF and pharmacist unable to locate the patient
- Numerous phone calls made per day to remind physicians of patient's need for VTE Prophylaxis
Increase the number of patients on VTE prophylaxis prior to pharmacist need for assessment
Decrease the number of EDOF patients missed if pharmacological therapy ordered in ED
Decrease the number of phone calls to physicians
Serves as a reminder to physicians the need for VTE prophylaxis for all admitted patients
Documentation of the reason for no VTE prophylaxis is addressed
- Assessed appropriateness of therapy
  - Mechanical vs pharmacological
- Dose adjust
  - Renal vs. non-renal
- Platelet monitoring for HIT
- Recommend appropriate therapy for patient who develop HIT and requires pharmacological VTE prophylaxis
- Ensure placement and documentation of SCDs
- Ensure 1st dose of heparin/lovenox given within 24hrs of admission

Continuing Role of the Pharmacist
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- AHRQ data

Starting Oct 1st, 2008: Hospital-acquired PE events are NON-REIMBURSABLE

- CMS
Assumption: 15% prevalence rate, $10,000 / incident

Total savings/cost avoided to date = $1.8 million

**Financial Impact**

- Total savings/cost avoided to date = $1.8 million
Total savings/cost avoided to date = $2.3 million
Take home message

1) Research
   ▪ Data collection
   ▪ Hospital statistics
   ▪ Current practice and quality measures
2) Institution support
- Administrators
- Physicians
- Nurses
- Pharmacists

3) Develop collaborative practice protocol
- Evidence based practice
- Best practice standards (tailored to your institution)
4) Implementation
   ▪ Staffing requirement
   ▪ Admissions / surgery schedule

5) Quality assurance
   ▪ Monitoring mechanism
   ▪ Data collection and reporting
   ▪ Re-evaluate program and modify
Special Thanks

- Arnold Tabuenca, MD
  Chief Medical Officer
  Riverside County Regional Medical Center

Questions?
References