

# Guideline



## CCHMC Trauma Service Operation Guidelines

Title: Venous Thromboembolism (VTE) Prophylaxis

Effective Date: 11/2022

Number: TR-23

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### 1.0 SCOPE

- 1.1 Care of the Trauma Services Patient at CCHMC.

### 2.0 DEFINITIONS

- 2.1. **Altered mobility:** A permanent or temporary state in which the patient is unable to ambulate freely, corresponds to a Braden Q scale for mobility 1-3 or activity 1-2.
- 2.2. **Deep Vein Thrombosis (DVT):** A thrombus in a deep vein.
- 2.3. **Graduated Compression Stocking (GCS):** Elastic stockings, either knee- or thigh-high, also known as TED hose.
- 2.4. **Risk category: Refer to VTE Risk Factors algorithm below**
  - 2.4.1. **Low risk:** No VTE risk factors
  - 2.4.2. **Moderate risk:** Multiple risk factors for VTE in the absence of altered mobility or has altered mobility with one or fewer additional risk factors.
  - 2.4.3. **High risk:** Altered mobility plus two or more additional risk factors
- 2.5. **Sequential Compression Device (SCD):** A device designed to intermittently squeeze blood from underlying deep veins in the leg upon compression of an inflatable sleeve, and to allow the blood to flow again when it decompresses.
- 2.6. **Venous Thromboembolism (VTE):** A thrombus in a vein or one that has broken free and is carried in the bloodstream (embolus).

### 3.0 GUIDELINE

- 3.1. It is recommended that patient's aged 12-17 years-old be assessed for VTE risk factors, and based on that assessment, assigned to a risk category (low, moderate, high) using the VTE Risk Assessment & Prevention flowsheet in EPIC.
  - 3.1.1. Nursing will complete the VTE Risk Assessment & Prevention flowsheet in EPIC at the time of inpatient admission.
  - 3.1.2. Reassessed at 24 hours of hospitalization by nursing staff.
  - 3.1.3. This should be documented in the patient's medical record in the VTE Risk Assessment & Prevention flowsheet in EPIC.
- 3.2. It is recommended that VTE prophylaxis be administered based on risk category as soon as feasible, but within 24 hours of assessment, unless there are contraindications (See below).
  - 3.2.1. Patients with contraindications to initiation of prophylaxis should be evaluated **daily** in a multidisciplinary fashion to determine timing of prophylaxis.
- 3.3. If planning to initiate Lovenox prophylaxis it is recommended:
  - 3.3.1. To seek surgical input in surgical patients regarding bleeding risk, prior to initiation
  - 3.3.2. Obtain Hematology consultation when considering alternative pharmacologic agents.

**VTE Prevention Intervention Based on VTE Risk Assessment**

	LOW RISK	MODERATE RISK		HIGH RISK
Mobility Status <sup>1</sup>	Baseline	Baseline	Altered	Altered
Number of VTE Risk Factors <sup>2</sup>	0	1 or more	0-1	2 or more
<b>Interventions: with no contraindications present</b>				
○ Encourage highest degree of mobility	Yes	Yes	Yes	Yes
○ Sequential Compression Device (SCD)	-	Yes	Yes	Yes
○ Prophylactic Anticoagulation <sup>3</sup>	-	-	-	Consider

<sup>1</sup> **Baseline Mobility:** usual state of mobility

**Altered Mobility:** inability to ambulate freely, corresponds to a Braden Q scale for mobility 1-3 or activity 1-2

<sup>2</sup> **VTE Risk Factors:**

- Critically ill (in the intensive care unit)
- Presence of a Central Venous Catheter (PICC, non-tunneled or tunneled)
- Obesity (BMI >95<sup>th</sup> percentile for age)
- Major Trauma (>1 extremity, pelvis or spine injury)
- Active cancer/malignancy
- Acute systemic infection/sepsis
- Chronic Inflammatory disorder (IBD, Lupus)
- Cyanotic heart disease
- Estrogen therapy
- Thrombophilic/Clotting disorder
- Personal history of blood clots
- Recent invasive surgery within past 30 days
- Family history of clots in 1<sup>st</sup> degree relative

<sup>3</sup> **Prophylactic Anticoagulation:** utilize a form of low molecular weight heparin or subcutaneous unfractionated heparin. If a patient is already on other forms of anticoagulants no additional prophylactic anticoagulation is needed. Aspirin or other antiplatelet therapy is not considered VTE prophylaxis.

<b>Contraindications to SCD (sequential compression device)?</b>	<input type="checkbox"/> Current DVT <input type="checkbox"/> Fracture of lower extremity (LE) <input type="checkbox"/> Skin conditions affecting LE (burn, dermatitis, wound, epidermolysis bullosa)	<input type="checkbox"/> Yes (if any checked) <input type="checkbox"/> No
<b>Contraindications to Lovenox?</b>	<input type="checkbox"/> Active bleeding <input type="checkbox"/> Known bleeding disorder <input type="checkbox"/> Epidural or lumbar puncture in the last 12 hours <input type="checkbox"/> Platelets <50,000/mm or heparin-induced thrombocytopenia <input type="checkbox"/> Brain tumor <input type="checkbox"/> Pelvic fracture in last 48 hours <input type="checkbox"/> Recent or scheduled neurosurgical procedure within 48 hours <input type="checkbox"/> Uncontrolled hypertension	<input type="checkbox"/> Yes (if any checked) <input type="checkbox"/> No

<b>High Risk</b>	<input type="checkbox"/> SCD (sequential compression device), aim at 18 hours of use <p style="text-align: center;"><b>AND</b></p> <input type="checkbox"/> Lovenox * (first dose 12 hours after surgery and hold 12h prior to surgical procedure) <ul style="list-style-type: none"> <li>○ &lt; 50 kg = 0.5 mg/kg/dose subQ BID</li> <li>○ 50-125 kg = 30 mg subQ BID <u>or</u> 40mg subQ daily</li> <li>○ &gt; 125 kg = 40 mg subQ BID</li> </ul> <p>* If renal dysfunction, consider decreasing dose and checking LMWH level 4 hours after 2<sup>nd</sup> or 3<sup>rd</sup> dose (goal 0.1-0.3 unit/mL)</p> <p>** If considering other options, consult hematology.</p>
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**4.0 REFERENCES**

4.1 Petty, J. K. (2017). Venous thromboembolism prophylaxis in the pediatric trauma patient. *Seminars in Pediatric Surgery*, 26, 14-20.

4.2 Mahajerin, A., Petty, J., Hanson, S. J., Thompson, A. J., O'Brien, S. H., Streck, C. J., . . . Faustino, V. S. (2016). Prophylaxis against venous thromboembolism in pediatric trauma: A practice management guideline from the Eastern Association for the Surgery of Trauma and the Pediatric Trauma Society. *Journal of Trauma and Acute Care Surgery*, 82(3), 627-636.

4.3 Landisch, R. M., Hanson, S. J., Cassidy, L. D., Braun, K., Punzalan, R. C., & Gourlay, D. M. (2016). Evaluation of guidelines for injured children at high risk for venous thromboembolism: A prospective observational study. *Journal of Trauma and Acute Care Surgery*, 82(5), 836-844.

**5.0 APPROVALS**

All revisions of this guideline are approved by the Trauma Service Department. This guideline is reviewed every three years or sooner if deemed necessary. Policy authority for this document resides with the Trauma Service Department. This guideline is approved by the Trauma Services Manager and the Director of Trauma Services.

HISTORY	
<b>Original Date</b>	
06/2004	
<b>Revision Date</b>	
05/15, 06/18, 10/19, 11/22	
<b>Review Date</b>	