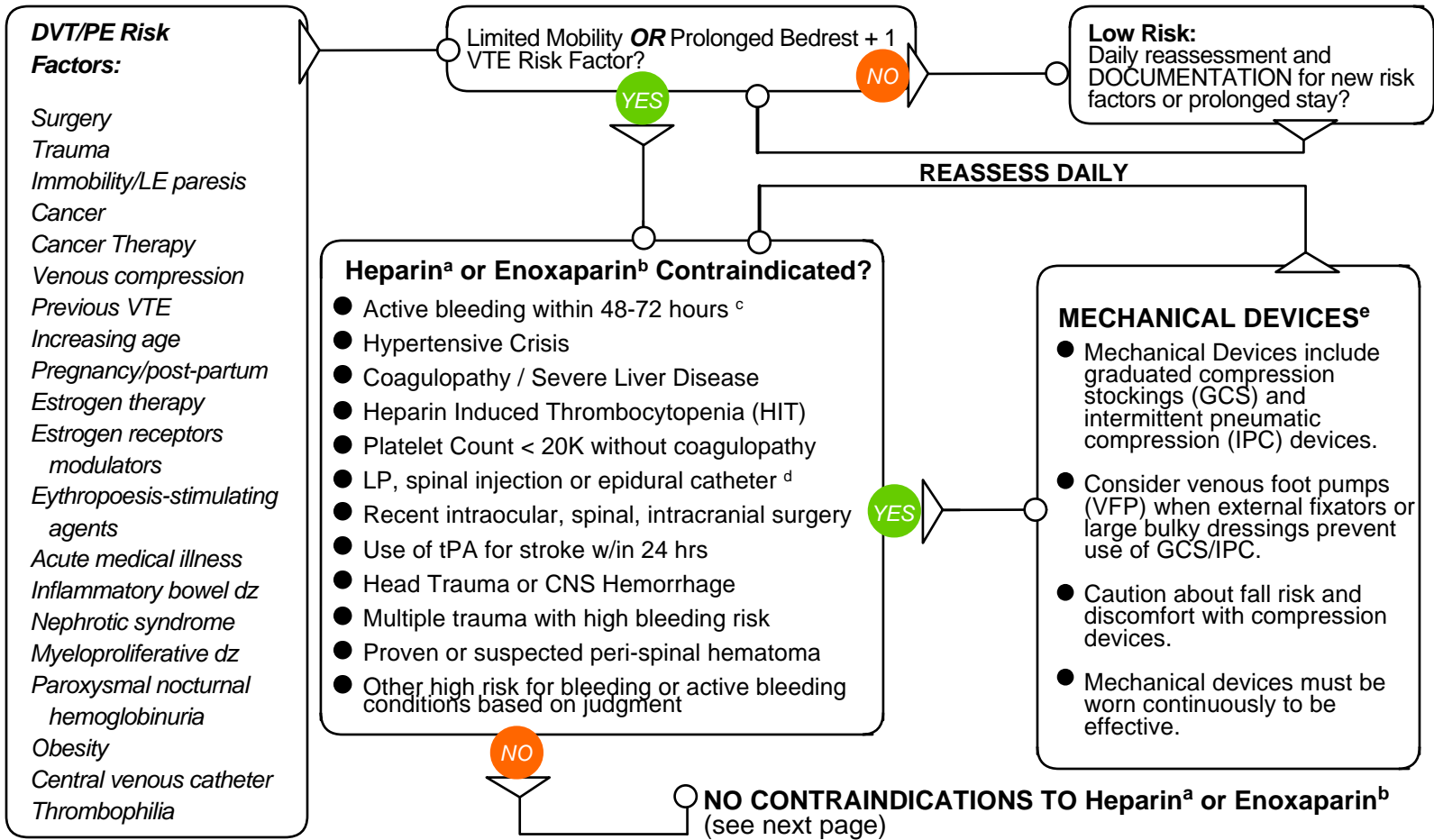


Guidelines for Prevention of Venous Thromboembolism



^a Heparin (Low Dose Unfractionated Heparin), does not need to be dose adjusted in renal failure or dialysis.

^b Enoxaparin (Low Molecular Weight Heparin), Special Notes: i- For BMI > 50 Use 40mg Q12^o, ii- For Clcr < 30, use 30mg QD iii- Use in dialysis is not absolutely contraindicated, but dialysis patients might preferentially receive heparin instead of enoxaparin.

^c Discuss with service that has expertise in specific bleeding issue, e.g. Gastroenterology for GIB, Neurosurgery for SAH, Neurology for hemorrhagic stroke, Orthopedics for hip fracture, etc. **The 48-72 hour period of stability is intended as a guideline only and each case must be considered individually for optimal patient safety.**

^d Special Caution due to risk of spinal hematoma. General guidelines are as follows, but clinical judgment must take precedence. No Prophylactic (low dose) LDUH 2-4 hours before or 2 hours after LP/spinal injection. No Prophylactic (low dose) enoxaparin 12 hours before or 2 hours after LP/spinal injection. Consult anesthesia service for management in the setting of an epidural catheter. Platelets should be checked prior to needle insertion to r/o HIT. Concurrent use of NSAIDs, clopidogrel or GP IIb/IIIa Inhibitors with prophylactic heparin or enoxaparin may increase bleeding risk. (**Note these guidelines DO NOT APPLY to full dose and therapeutic doses of Heparin or Enoxaparin. See Anticoagulation Guidelines for Neuraxial Anesthesia at www.uwmcacc.org for more information**).

^e Mechanical Devices: 1) Mechanical devices should be used when anticoagulant-based prophylaxis is contraindicated (1C+). 2) It is common practice to utilize SCD's intraoperatively when anticoagulant-based prophylaxis is withheld, however, there is NO evidence basis supporting this practice; 3) Mechanical devices may be removed when the patient is initiated on anticoagulant-based prophylaxis except in selected high risk groups described in table;

^f Consideration of extended DVT prophylaxis has been recommended in post THR and TKR, but may also be a consideration in any high risk patient who will remain bed bound post-discharge.

^g ACCP endorses either Heparin or Enoxaparin as a 1A recommendation for ischemic stroke. Several reports favor Enoxaparin over Heparin.

^h Evidence to favor Enoxaparin over Heparin in lower risk trauma patients is lacking, however, evidence consistently favors Enoxaparin in higher risk patients.

ⁱ Suboptimal prophylaxis defined as initiation of LMWH > 36 hours after trauma, interruption of LMWH during hospital course, or transfer from an outside facility.

\$ COSTS: Heparin 5000 Units (\$1.05 / dose); Enoxaparin 30 mg (\$13.78 / dose); Enoxaparin 40 mg (\$18.37 / dose)

Level of Evidence: Grade 1 benefit clearly outweighs risks and burdens; Grade 2: benefits vs risks and burdens closely balanced;

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Clinical Group	1st Line Regimen	2nd Line Regimen	SCD / ES Augmentation?	Duplex Screen in Asymptomatic?	Extended Prophylaxis? ^f
Medically ill: Mod. Risk: Mild medical illness w/Reduced mobility.	Heparin 5000 units SQ Q8 ^o or Q12 ^o (1A)	Enoxaparin 40 mg SQ daily (1A)	No	No	No
Medically ill, High Risk: ICU Patients, Obesity, Hypercoagulable states, Previous DVT, OR 2 or more DVT risk factors above.	Heparin 5000 units SQ Q8 ^o (1A)	Enoxaparin 40 mg SQ daily (1A)	No	No	Consider in high risk patients.
Medically ill: Special Cases: Uncompensated CHF Active Malignancy Ischemic Stroke Trauma / Ortho Surgery	Enoxaparin 40 mg SQ daily (1A)	Mechanical prophylaxis	May be effective in high risk patients. (1C)	No	Consider in high risk patients.
Neurology: ischemic Stroke ⁹	Heparin 5000 units SQ Q8 ^o or Q12 ^o	Enoxaparin 40 mg SQ daily	No	No	Consider in high risk patients.
Neurology: Hemorrhagic Stroke (When clinically stable and hemorrhages on CT are stable.)	Heparin 5000 units SQ Q8 ^o or Q12 ^o (2B)	Enoxaparin 40 mg SQ daily	No	No	No
Trauma Low/Mod Risk ^h , including non-High Risk states (eg. single system, non-orthopedic) and no DVT risk factors.	Enoxaparin 30 mg SQ Q12 ^o or Heparin 5000 units SQ Q8 ^o or Q12 ^o (1A)	Mechanical prophylaxis (1B)	No	No	No
Trauma: High Risk ⁱ , including long bone Fx, pelvic Fx, femur Fx, spine injury, venous injury, use of femoral line and/or DVT risk factors. (As soon as risk of bleeding is low enough to permit use of prophylactic anticoagulants.) (1A)	Enoxaparin 30 mg SQ Q12 ^o (1A)	Mechanical prophylaxis (1B)	No	High risk for VTE (SCI, LE or pelvic Fx, head injury, femoral line) AND suboptimal: ⁱ prophylaxis. (1C)	Enoxaparin or Warfarin Recommended in high risk patients with impaired mobility. (2C)
Spinal Cord Injury (When primary hemostasis is evident.)	Enoxaparin 30 mg SQ Q12 ^o (1B)	LD UH 5000 units SQ Q8 ^o or Q12 ^o AND Mechanical prophylaxis (2B)	May be effective in high risk patients (2B)	High risk for VTE (SCI, LE or pelvic Fx, head injury, femoral line) AND suboptimal: ⁱ prophylaxis. (1C)	Enoxaparin or Warfarin recommended in rehabilitation phase. (1C)
Neurosurgery --Head Injury or Bleed (When clinically stable and hemorrhages on CT scan are stable.)	Heparin 5000 units SQ Q8 ^o or Q12 ^o	Enoxaparin 40 mg SQ daily	May be effective in high risk patients (2B)	No	No
Neurosurgery -- Elective (Generally considered safe 48–72 hours after surgery.)	Heparin 5000 units SQ Q8 ^o or Q12 ^o (2B)	Enoxaparin 40 mg SQ daily (2A)	May be effective in high risk patients (2B)	No	No
Orthopedics: Elective total knee/hip replacement Hip Fracture Surgery	Enoxaparin 30mg SQ Q12 ^o (1A) (either 12 hrs before or 12-24 hrs post-op) (1A)	Adjusted Dose Warfarin (1A)	May be effective in high risk patients. (2C)	No (1A)	Recommended for high risk patients for 10-35 days total. (1A)



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Clinical Group	1st Line Regimen	2nd Line Regimen	SCD / ES Augmentation?	Duplex Screen in Asymptomatic?	Extended Prophylaxis? ****
Orthopedics: Low risk, includes isolated extremity injuries w/ no DVT risk factors	Early Mobilization	Not Applicable	No	No	No
Orthopedics: High risk, includes isolated extremity injuries w/ DVT risk factors	Heparin 5000 units SQ Q8 ^o or Q12 ^o	Enoxaparin 30 mg SQ Q12 ^o	No	No (1A)	Physician discretion
Elective Spine Surgery: Low Risk, includes c-spine and no DVT risk factors.	Early Mobilization (1C)	Not Applicable	No	No	No
Elective Spine Surgery: High risk, includes lumbar spine, anterior approach, neuro deficit and/or DVT risk factors	Heparin 5000 units SQ Q8 ^o or Q12 ^o (1C+)	Enoxaparin 40 mg SQ dail (1B)	May be effective in high risk patients (1C+)	No	Consider in high risk patients.
Burns	Heparin 5000 units SQ Q8 ^o or Q12 ^o (1C+)	Enoxaparin 40 mg SQ daily (1C+)	No	No	Consider in high risk patients.
Surgical / Lap Procedures, Low risk for DVT: Minor or Lap procs, TURP, Age < 40, No DVT risk factors.	Early Mobilization (1A- 1C+)	Not Applicable	No	No	No
Surgical / Lap Procedures, Moderate risk for DVT: Age > 40, Benign GYN, Major GU, or DVT risk factors.	Heparin 5000 units SQ Q12 ^o or Q8 ^o (1A)	Enoxaparin 40 mg SQ daily (1A)	No	No	No
Surgical / Lap Procedures, High risk for DVT: Major surgery, Age > 60, GYN or GU malignancy, or multiple DVT risk factors.	Heparin 5000 units SQ Q8 ^o (1A)	Enoxaparin 40 mg SQ daily (1A)	May be effective in high risk patients (1C+)	No	Consider in high risk patients, especially cancer patients. (2A)