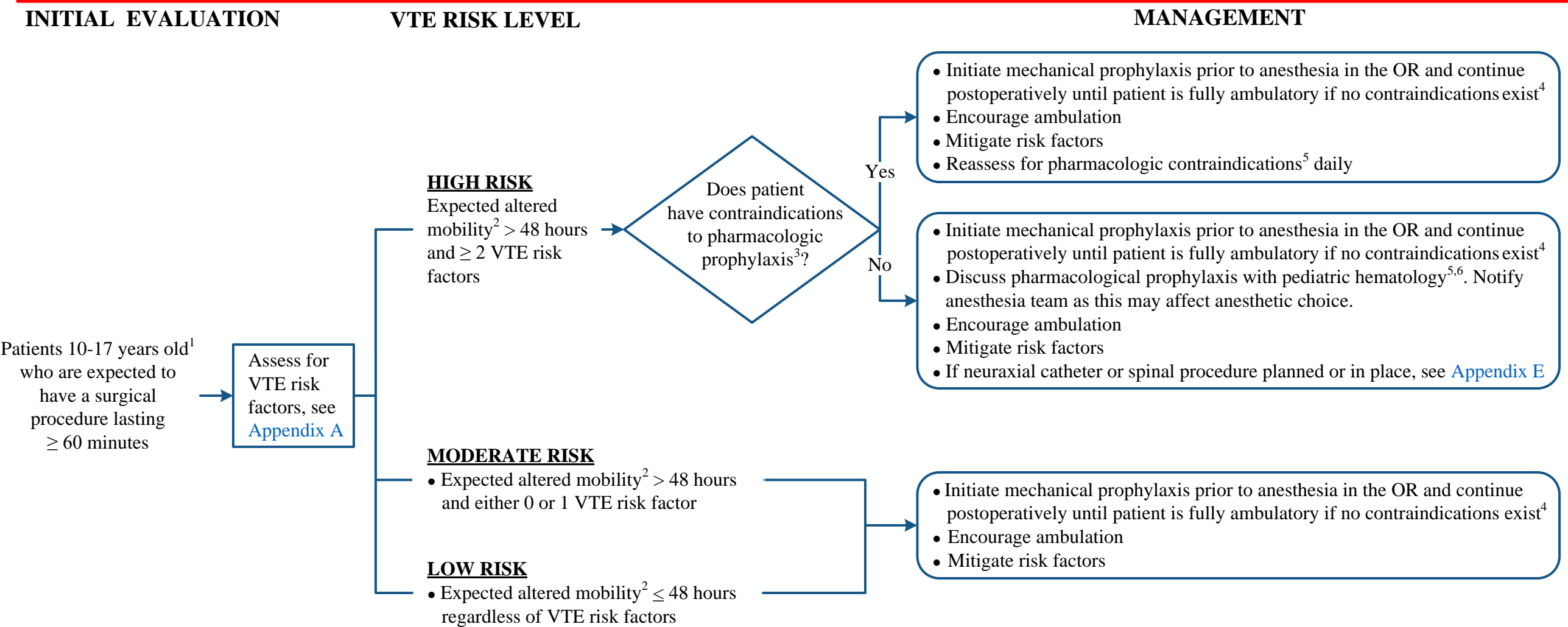


Venous Thromboembolism (VTE) Prophylaxis for Hospitalized Surgical Pediatric Patients (Age 10-17 years)

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson’s specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient’s care. This algorithm should not be used to treat pregnant women.



OR = operating room

¹ Patients < 10 years old do not need VTE prophylaxis perioperatively unless there is known inherited thrombophilia or previous history of deep vein thrombosis (DVT); consult Pediatric Hematology in such cases

² Altered mobility is defined as a permanent or temporary state in which the child has a limitation in independent, purposeful physical movement of the body or of one or more extremities

³ See [Appendix B](#) for contraindications to pharmacological options for VTE prophylaxis

⁴ See [Appendix C](#) for mechanical VTE prophylaxis

⁵ See [Appendix D](#) dosing for VTE pharmacologic prophylaxis in pediatric patients

⁶ Obtain pediatric hematology consult when weighing risk versus benefit in patients at risk of bleeding

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APPENDIX A: VTE Risk Factors

- Active cancer (or suspicion of cancer)
- Blood stream infection
- Central venous catheter (including non-tunneled, tunneled and peripherally inserted central catheters)
- Treatment factors including chemotherapy (especially asparaginase, bevacizumab, thalidomide/lenalidomide plus high-dose dexamethasone), protein kinase inhibitors, immunotherapy, and/or antiangiogenic agents
- Exogenous estrogen compounds (contraceptives, hormone replacement, tamoxifen/raloxifene, diethylstilbestrol) within past two months
- History of venous thrombosis
- Hyperosmolar state (serum osmolality > 320 mOsm/kg)
- History of inflammatory diseases (e.g., inflammatory bowel disease, systemic lupus erythematosus)
- Obesity (BMI > 95th percentile for age)
- Orthopedic procedures: hip or knee reconstruction
- History of nephrotic syndrome
- History of familial and/or acquired hypercoagulability
- Major trauma: more than 1 lower extremity long bone fracture, complex pelvic fractures, spinal cord injury
- Major surgery: abdominal, pelvic, orthopedic
- Erythropoietin stimulating agents in patients undergoing orthopedic surgery
- Altered mobility¹
- History of antiphospholipid antibodies
- History of polycythemia
- History of congenital heart disease (non-biologic reconstruction)

APPENDIX B: Contraindications to Pharmacological Options for VTE Prophylaxis

Absolute Contraindications

- Evidence of or high risk of bleeding: cerebral, gastrointestinal or genitourinary
- Uncorrected coagulopathy
- Bleeding disorder (known or suspected)
- Severe thrombocytopenia: platelets < 30 K/microliter
- Hypersensitivity to enoxaparin, heparin, pork products, or any component of the formulation
- Epidural or paraspinal hematoma

Relative Contraindications

- Moderate thrombocytopenia: platelets 30-50 K/microliter
- For patients undergoing spinal procedures and/or epidural placement/removal, see [Appendix E](#)
- Intracranial or spinal lesion at high risk of bleeding
- Recent major surgery at high risk of bleeding (e.g., neurosurgical)
- Pelvic fracture within past 48 hours
- Uncontrolled hypertension
- Renal failure

¹ Altered mobility is defined as a permanent or temporary state in which the child has a limitation in independent, purposeful physical movement of the body or of one or more extremities

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APPENDIX C: Mechanical VTE Prophylaxis

Sequential compression devices (SCDs) should be used for pediatric patients requiring mechanical VTE prophylaxis. The goal is to use SCDs for 18 hours per day.

Contraindications:

- DVT, suspected or existing (can use graduated compression stockings)
- Extremity to be used has acute fracture
- Extremity to be used has peripheral IV access
- Skin conditions affecting extremity (*e.g.*, dermatitis, burn)
- Unable to achieve correct fit due to patient's size

APPENDIX D: Dosing for VTE Pharmacologic Prophylaxis in Pediatric Patients

Enoxaparin:

Weight < 50 kg: 0.5 mg/kg subcutaneously twice daily

Weight ≥ 50 kg: 40 mg subcutaneously once daily

Aspirin (may be used in orthopedic patients, not recommended in other populations): 81 mg PO

APPENDIX E: Spinal Procedure and/or Neuraxial Catheter Management

Hold times prior to Lumbar Puncture (LP) or neuraxial catheter removal or placement:

- Enoxaparin: 12 hours

Hold time after LP or neuraxial catheter placement:

- Enoxaparin: 8 hours (if blood in CSF sample: 24 hours)

Hold time after neuraxial catheter removal:

- Enoxaparin: 8 hours

CSF = cerebrospinal fluid

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SUGGESTED READINGS

- Cincinnati Children's Hospital Medical Center, Multidisciplinary VTE Prophylaxis BESt Team (2014). Best evidence statement venous thromboembolism (VTE) prophylaxis in children and adolescents (Hospital Medicine/Prophylaxis/Venous Thromboembolism/BESt 181). Retrieved from <https://www.cincinnatichildrens.org/-/media/cincinnati%20childrens/home/service/j/anderson-center/evidence-based-care/recommendations/type/venous%20thromboembolism%20best%20181>
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