Venous Thromboembolism (VTE) Prophylaxis Guideline

Definitions:

Venous Thromboembolism (VTE) is a condition that occurs when a blood clot forms in a vein, which can block the flow of blood and cause swelling and pain. VTE can occur in any vein, but it most commonly affects the veins in the legs, pelvis, or arms. If a clot breaks free from the vein and travels through the bloodstream, it can become lodged in the lungs, causing a potentially life-threatening condition called a pulmonary embolism.

There are two main types of VTE: deep vein thrombosis (DVT) and pulmonary embolism (PE). DVT occurs when a blood clot forms in a deep vein, usually in the leg or thigh. PE occurs when a blood clot from another part of the body, usually the legs, breaks off and travels to the lungs, causing a blockage.

VTE prophylaxis is carried out using either drugs (eg, heparin) or mechanical methods (e.g., intermittent pneumatic compression device) that are effective for preventing deep vein thrombosis (DVT).

Incidence:

- The Presence of a central venous catheters is the most common risk factor for VTE In children[39]. Since the risk factors and preventative measures for CVC related thrombosis are distinct from non CVL related thrombosis providers should refer to the DCMC EBOC Guidelines on Prevention of CVC related thrombosis for advice.
- The incidence of VTE in hospitalized children has increased by nearly 70% in the last decade. Young adults (18-21 years) and adolescents (14-17 years) had significantly increased rates of VTE compared with children (2-9 years) with an incidence rate ratio [IRR] 7.7, 95% CI 5.1-12.0; IRR 4.3, 95% CI 2.7-6.8, respectively.[33]
- For the general pediatric ICU population, the incidence of VTE ranges from 0.3% - 0.9%.
  - The increase in this incidence is likely related to better detection methods, increased awareness, and advancements in the care of critically ill children.
  - Failure to provide prophylaxis can result in significant VTE morbidity including prolonged hospital length of stay, a 20% to 25 % incidence of post thrombotic syndrome, and increased hospitalization costs.
  - Excess inpatient costs can range from $12,000 to $28,000 per hospitalization.
- The incidence of VTE is higher in injured children than it is in the general pediatric population.
- Incidence ranges from 0.1% to 1.2% if the nearly one quarter of a million children hospitalized after trauma in the United States annually.

Etiology:

Most cases of VTE are caused by a hypercoagulable state that is promoted by a traumatic injury, an infection, or other states of illness. Virchow's triad, which consists of stasis, vessel wall abnormalities or intimal injury, and alterations in clotting cascades are all thought to contribute to hypercoagulability. There are however several developmental differences that help protect children from thrombosis. This includes improved thrombin regulation, decreased capacity to generate thrombin, increased levels of α-2-macroglobulin (a direct thrombin inhibitor) and reduced plasma concentrations of coagulation proteins.

Guideline Inclusion Criteria:

1. All admitted patients age 12 and above should be screened for risk factors and need for SCDs/ pharmacological prophylaxis to prevent VTE.

2. Child ≥ 12 yrs undergoing invasive surgical procedure **and** general anesthesia expected to last ≥ 1 hr (Please see Surgical section below)

Guideline Exclusion Criteria:

Noted contraindications

Screening Evaluation:

Evaluate patient for deviation from normal mobility (altered mobility as compared to patient's normal baseline) AND Key Risk Factors for VTE. This should be done daily during rounding starting on the first full day after admission.

Mobility Definitions:

Mobility can play a significant role in the development of Venous Thromboembolism (VTE).

- Baseline Mobility
  - A patient's usual state of ambulation
  - The patient is ambulatory at baseline (i.e., NOT wheelchair bound) and can meet the goal of walking equal to 50 ft, 3x/day.
- Altered Mobility
  - A temporary inability to ambulate freely
  - The patient is ambulatory at baseline but is UNABLE to meet the goal of walking ≥ 50 ft, 3x/day (Example of 50 ft distance: Length of semi-truck trailer)

Table 1 Risk Factors

Key Risk Factors for VTE
Acute Medical Conditions[2,5,6, 11,14,15,16,19,20,22,23,26] • Sepsis or other high risk infection (CNS/head/neck infection, endocarditis, intra-abdominal or thoracic abscess, bone/joint infection, pneumonia) • Active Cancer • Pregnancy • Active inflammatory, autoimmune, or rheumatologic disease • Severe dehydration • Major surgery within the past 30 days • Critically ill (in Intensive care unit)

- Cardiac Disease (cardiomyopathy, Afib, single ventricle pathology and palliative surgery shunts)[39]
- Major Trauma (see examples) [1,5,9,11,12,13,19,22,23,26]
  - Moderate or Severe Traumatic brain injury
  - Vascular injury[9]
  - Spinal cord injury[21,26]
  - Complex Lower Extremity/non-weight bearing fracture[9]
  - Complex or operative pelvic Fracture[9]

Chronic Conditions[2,5,11,14,15,16,19,20,22,23,26,39]

- Obesity
  - Under 18 years
    - BMI ≥ 95th percentile for age
  - Over 18 years
    - BMI ≥ 30
- Inflammatory disorders
  - e.g., autoimmune disorders, SLE, IBD
- Thrombophilia
  - Inherited
    - e.g., Factor V Leiden, Prothrombin mutation, Antithrombin deficiency antiphospholipid syndrome
  - Acquired
    - e.g., Antiphospholipid syndrome or protein losing disorder (nephrotic syndrome, PLE chylous effusion)
- Sickle cell disease (SCD)

Historical Conditions

- Personal history of DVT/PE, VTE, stroke, or venous sinus thrombosis
- Family hx of DVT/PE, VTE in 1st degree relative <50 years old or multiple relatives of any age[35]

High Risk Medications

- High risk medications [4,11,12,14,15,17,19,20,22,23,26]
  - Asparaginase use within past 2 months
  - Estrogen use within past 2 months (oral contraceptives, patch, nuvaring, intradermal implant)

Table 2: Identify patients at-risk for VTE[14,19,22]

Scoring Criteria		
Low Risk	**Moderate Risk**	**High Risk**

• Baseline mobility and 0 VTE risk factors	• Altered mobility and 0 VTE risk factors • Baseline mobility and ≥ 1 VTE risk factor	• Altered mobility and ≥ 1 VTE Risk Factor

Table 3: Practice Recommendations

Practice Recommendations
Encourage Mobility - (All risk categories) ○ Encourage to achieve the highest degree of mobility ○ PT consult should be considered for medium and high risk patients
Mechanical Prophylaxis - (Moderate and High Risk Patients) **SEQUENTIAL COMPRESSION DEVICE (SCD)** • Bedside nurse should be a part of this daily conversation Contraindications[1,4,7,14,20,22,23] • If one extremity is not available for use, the other extremity should be considered if not affected. • Lower extremity conditions which result in significant pain with compression (e.g. solid tumor, vaso-occlusive pain episode in sickle cell disease) • Extremity to be used has acute fracture or patient at high risk of fracture (e.g. osteogenesis imperfecta) • Skin conditions affecting extremity (e.g., dermatitis, burns, recent skin graft, wound) • Extremity has distal PIV • DVT Suspected or existing in lower extremity (can place on contralateral limb) • Unable to achieve fit due to size • Concern SCD could be used to cause self-harm
Pharmacological Prophylaxis - (High Risk patients) • Recommended in cases where patient ≥ 18 years • Strongly considered where patients < 18 years • Send screening labs CBC, PT, PTT, Fibrinogen • Consult Hematology before initiating Contraindications • Unable to maintain platelet count ≥ 50 K/microL [21,38] • CNS Bleed: unless approved by Neurosurgery ○ Spinal hematoma[36] ○ Intracranial Hemorrhage[12]

- CNS Disorder with high risk of bleeding (Including but not limited to AVM, aneurysm, CNS mass or Moya Moya)[12,19,22,26]
- Ongoing or uncontrolled bleeding[22,23,26]
  - Including Solid Organ Injury[12]
- Known Bleeding Disorder[20,22,23,26]
  - von Willebrand (vW) disease
  - Hemophilia A/B
  - Known platelet dysfunction disorder
- History of heparin-induced thrombocytopenia or allergy to Heparin[12,26,21]
- Perioperative considerations
  - Surgical procedure scheduled within 24 hours[8,12,22,23]
  - Postoperative patient within 72 hours of surgery
    - Unless cleared by surgeon
  - Postoperative patient within 96 hours of Neurosurgery[12]
    - Unless cleared by Neurosurgery
- Uncontrolled Hypertension[19]
  - ≥ 140/90
- Epidural catheter in place or recent removal (<12 hours)[21,22,24]
  - Unless approved by Anesthesia

Consults: Before starting pharmacologic anticoagulation

- Hematology
  - All High Risk Patients
- Neurosurgery
  - Spinal hematoma
  - Intracranial Hemorrhage
  - CNS Disorder with high risk of bleeding- as listed above
  - Acute Spinal Cord Injury
- Orthopedics
  - Patients with orthopedic Injuries
  - Patients who have had surgery of hip, knee, spine
- Anesthesia
  - Epidural catheter in place
- Physical Therapy

Table 4: Prophylactic Anticoagulation

Prophylactic Anticoagulation
Prior to initiating Prophylactic Anticoagulation ● Obtain baseline CBC, PT/INR, PTT, and Fibrinogen ● Discontinue NSAIDs or aspirin
Initial Dosing of Enoxaparin Please refer to Enoxaparin pedi/neo prophylaxis/treatment power plan.

Existing External Guidelines/Clinical Pathways

Existing External Guideline/Clinical Pathway	Organization and Author	Last Update
VTE Prophylaxis in Children and Adolescents	Cincinnati Children's Hospital	02/2014
VTE Prophylaxis in Children and Adolescents	Children's Hospital of Orange County (CHOC)	07/2017
VTE Prophylaxis for Hospitalized Surgical Pediatric Patients	MD Anderson Cancer Center	08/2017
VTE Risk Assessment	Children's Mercy Kansas City	05/2018
VTE screening Tool	Peyton Manning	12/2017
Pediatric VTE Screening Worksheet	Cook Children's	03/2018
Pediatric VTE Guideline & Algorithm	UT Health	06/2017
Children's Hospital of Philadelphia VTE Algorithm	CHOP	03/2023
University of Washington Pediatric Inpatient clinical practice Guideline	University of Washington	03/2023
Solutions for Patient Safety Non CVS Venous Thromboembolism		03/2003

Any published clinical guidelines have been evaluated for this review using the **AGREE II criteria**. The comparisons of these guidelines are found at the end of this document. **AGREE II criteria** include evaluation of: Guideline Scope and Purpose, Stakeholder Involvement, Rigor of Development, Clarity of Presentation, Applicability, and Editorial Independence.

Review of Relevant Evidence: Search Strategies and Databases Reviewed

Search Strategies	Document Strategies Used
Search Terms Used:	Thromboembolism; VTE; DVT; research; pediatrics; lovenox or enoxaparin; prevention; guidelines; prophylaxis
Years Searched - All Questions	No specified limit
Language	English
Age of Subjects	Less than 21 years
Search Engines	Google scholar
EBP Web Sites	Cochrane Collaborative; Joanna Briggs Institute
Professional Organizations	American College of Thoracic Surgeons; Children's Oncology Group; Solutions for Patient Safety
Joint Commission	
Government/State Agencies	
Other	CINAHl, PubMed; Academic Search Premiere; Medline

Evidence Found with Searches

Check Type of Evidence Found	Summary of Evidence – All Questions	Number of Articles Obtained
☒	Systematic Reviews	6
☒	Meta-analysis articles	1
☐	Randomized Controlled Trials	
☒	Non-randomized studies	16
☒	Review articles	2
☐	Government/State agency regulations	
☒	Professional organization guidelines, white papers, etc..	1
☒	Other: Delphi study; Consensus paper	1

References

1. Azu, M., McCormack, J., Scriven, R., Brebbia, J., Shapiro, M., & Lee, T. (2005). Venous thromboembolic events in pediatric trauma patients: Is prophylaxis necessary? The Journal of TRAUMA Injury, Infection, and Critical Care, 59(6), 1345-1349.
2. Badawy, S.M., Rychlik, K., & Sharathkumar, A.A. (2016). Current practice of pharmacological thromboprophylaxis for prevention of venous thromboembolism in hospitalized children: A survey of pediatric hemostasis and thrombosis experts in North America. Journal of Pediatric Hematology/Oncology, 38(4), 301-307.
3. Bigelow, A.M., Flynn-O'Brien, K.T., Simpson, P.M., Dasgupta, M. & Hanson, S.J. (2018). Multicenter review of current practices associated with venous thromboembolism prophylaxis in pediatric patients after trauma. Pediatric Critical Care Medicine, 19(9), e448-e454.
4. Branchford 2018, B.R., Betensky, M., & Goldenberg, N.A. (2018). Pediatric issues in thrombosis and hemostasis: The how and why of venous thromboembolism risk stratification in hospitalized children. Thrombosis Research, 172, 190-193.
5. Branchford 2017, B.R., Mahajerin, A., Raffini, L., Chalmers, E., Van Ommen, C.H., Chan, A.K.C. & Goldenberg, N.A. (2017). Recommendations for standardized risk factor definitions in pediatric hospital-acquired venous thromboembolism to inform future prevention trials: Communication from the SSC of the ISTH. Journal of Thrombosis and Hemostasis, 15, 2274-2278.
6. Brower, L.H., Shaughnessy, E.E., & Chima, R.S. (2017). Development of a surveillance system for pediatric hospital-acquired venous thromboembolism. Hospital Pediatrics, 7(10), 610- 614.
7. Chima, R.S., & Hanson, S.J. (2017). Venous thromboembolism in critical illness and trauma: Pediatric perspectives. Frontiers in Pediatrics, 5(47), 1-6.
8. Christie, S., Thibault-Halman, G., & Casha, S. (2011). Acute pharmacological DVT prophylaxis after spinal cord injury. Journal of Neurotrauma, 28(8), 1509-1514.
9. Connelly, C.R., Laird, A., Barton, J.S., Fischer, P.E., Krishnaswami, S., Schreiber, M.A., Zonies, D.H., & Watters, J.M.. (2016). A clinical tool for the prediction of venous thromboembolism in pediatric trauma patients. JAMA Surgery, 151(1), 50-57.
10. DiVittorio, R., Bluth, E., & Sullvan, M. (2002). Deep vein thrombosis: Diagnosis of a common clinical problem. The Ochsner Journal. 4 (1), 14-17.
11. Faustino, E.V.S., & Raffini, L. J. (2017). Prevention of hospital-acquired venous thromboembolism in children: A review of published guidelines. Frontiers in Pediatrics, 5(9), 1-6.
12. Hanson 2016, S., Faustino, E.V.S., Mahajerin, A., O'Brien, S.H., Streck, C.J., Thompson, A.J., Petrillo, T.M., & Petty, J.K. (2016). Recommendations for venous thromboembolism prophylaxis in pediatric trauma patients: A national, multidisciplinary consensus study. The Journal of Trauma and Acute Care Surgery, 80(5), 695-701.
13. Hanson, S.J., Punzalan, R.C., Greenup, R.A., Liu, H., Sato, T.T., & Havens, P.L. (2010). Incidence and risk factors for venous thromboembolism in critically ill children after trauma. The Journal of Trauma, 68(1), 52-56.
14. Hanson, S.J., Punzalan, R.C., Arca, M., Simpson, P., Christensen, M.A., Hanson, S.K., Yan, K., Braun, K. & Havens, P.L. (2012). Effectiveness of clinical guidelines for deep vein thrombosis prophylaxis in reducing the incidence of venous thromboembolism in critically ill children after trauma. The Journal of Trauma, 72(5), 1292-1297.
15. Jackson, P.C. & Morgan, J.M. (2008). Perioperative thromboprophylaxis in children: Development of a guideline for management. Pediatric Anesthesia, 18, 478-487.

16. Jaffray, J., Mahajerin, A., Young, G., Goldenberg, N., Ji, L., Sposto, R., Stillings, A., Krava, E., & Branchford, B. (2017). A multi-institutional registry of pediatric hospital-acquired thrombosis cases: The Children's Hospital-Acquired Thrombosis (CHAT) project. Thrombosis Research, 161(2018), 67-72.
17. Landisch, R.M., Hanson, S.J., Cassidy, L.D., Braun, K., Punzalan, R.C., & Gourley. D.M. (2017). 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.
18. Landisch 2018, R.M., Hanson, S.J., Punzalan, R.C., Braun, K., Cassidy, L.D., & Gourley, D.M.. (2018). Efficacy of surveillance ultrasound for venous thromboembolism diagnosis in critically ill children after trauma. Journal of Pediatric Surgery, 53(11), 2195-2201.
19. Mahajerin, A. Branchford, B.R., Amankhaw, E.K., Raffini, L., Chalmers, E., van Ommen, C.H., & Goldenberg, N.A. (2015). Hospital-associated venous thromboembolism in pediatrics: A systematic review and meta-analysis of risk factors and risk-assessment models. Haematologica, 100(8), 1045-1050.
20. Mahajarin, A., Webber, E.C., Morris, J., Taylor, K. & Saysana, M. (2015). Development and implementation results of a venous thromboembolism prophylaxis guideline in a tertiary care pediatric hospital. Hospital Pediatrics, 5(12), 630-636.
21. Mahajerin, A., Petty, J.K., Hanson, S.J., Thompson, A.J., O'Brien, S.H., Streck, C.J., Petrillo, T.M., & Faustino, E.V.S. (2017). 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.
22. Meier, K.A., Clark, E., Tarango, C., Chima, R.S., & Shaughnessy, E. (2015). Venous thromboembolism in hospitalized adolescents: An approach to risk assessment and prophylaxis. Hospital Pediatrics, 5(1), 44-51.
23. Meier, K.A., Clark, E., Tarango, C., Chima, R.S., & Shaughnessy, E. (2015). Venous thromboembolism in hospitalized adolescents: An approach to risk assessment and prophylaxis. Hospital Pediatrics, 5(1), 44-51.
24. Newall, F., Branchford, B., & Male, C. (2018). Anticoagulant prophylaxis and therapy in children: Current challenges and emerging issues. Journal of Thrombosis and hemostasis, 16, 196-208.
25. O'Brien, S., Hayley, K., Kelleher, K., Wang, W., McKenna, C., & Gaines, B. (2008). Variation in DVT prophylaxis for adolescent trauma patients: A survey of the Society of Trauma Nurses. Journal of Trauma Nursing, 15(2), 53-57.
26. Petty, J.K. (2017). Venous thromboembolism prophylaxis in the pediatric trauma patient. Seminars in Pediatric Surgery, 26 (2017), 14-20.
27. Raffini, L., Trimarchi, T., Bellveau, J., & Davis, D. (2011). Thromboprophylaxis in a pediatric hospital: A patient-safety and quality-improvement initiative. Pediatrics, 127(5), e1326-e1332.
28. Salarian, S., Rahimi, B.M., Taherkhanchi, B., & Bagheri, B. (2018). Evaluation of guidelines and risk factors for venous thrombosis and pulmonary embolism in hospitalized children: A cross-sectional study. Iranian Journal of Pediatric Hematology and Oncology, 8(1), 48-53.
29. Takemoto, C.M., Sohi, S., Desai, K., Bharaj, R., Khanna, A., McFarland, S.,…& Streif, M.B. (2014). Hospital-associated thromboembolism in children: Incidence and clinical characteristics. The Journal of Pediatrics, 164(2), 332-338.
30. Jupalli A, Iqbal AM. Enoxaparin. [Updated 2022 Feb 14]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK539865/
31. Flynn, Joseph T., David C. Kaelber, Carissa M. Baker-Smith, Douglas Blowey, Aaron E. Carroll, Stephen R. Daniels, Sarah D. De Ferranti, et al. "Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents." Pediatrics 140, no. 3 (2017): 31–32. https://doi.org/10.1542/peds.2017-1904.
32. Nice, The. "Complex Fractures," no. February (2016): 1–10.

33. Rocha, Ana T, Edison F Paiva, Arnaldo Lichtenstein, Rodolfo Jr Milani, Cyrillo Filho Cavalheiro, and Francisco H Maffei. "Risk-Assessment Algorithm and Recommendations for Venous Thromboembolism Prophylaxis in Medical Patients." Vascular Health and Risk Management 3, no. 4 (2007): 533–53.
34. Tools, Collateral, Appendix A Pediatric, V T E Prophylaxis, and Risk Factors. "Venous Thromboembolism Prophylaxis - Pediatric - Inpatient Clinical Practice Guideline," 2019.
35. The Value of Family History as a Risk Indicator for Venous Thrombosis | Genetics and Genomics | JAMA Internal Medicine | JAMA Network. (n.d.). Retrieved September 27, 2022, from https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/414874
36. Russell D Hull, Heparin and LMW heparin: Dosing and adverse effects. Post TW, ed. UpToDate. Waltham, MA: UpToDate Inc. http://www.uptodate.com.
37. Geerts WH, Pineo GF, Heit JA, Bergqvist D, Lassen MR, Colwell CW, Ray JG. Prevention of venous thromboembolism: the Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. Chest. 2004 Sep;126(3 Suppl):338S-400S. doi: 10.1378/chest.126.3_suppl.338S
38. *Prevention of Venous Thromboembolic Disease in Acutely Ill Hospitalized Medical Adults* - *UpToDate*, January 17, 2023.
39. *Venous Thrombosis and Thromboembolism (VTE) in Children: Risk Factors, Clinical Manifestations, and Diagnosis* - *UpToDate*, April 11, 2022.
40. Witte AB, Van Arendonk K, Bergner C, Bantchev M, Falcone RA Jr, Moody S, Hartman HA, Evans E, Thakkar R, Patterson KN, Minneci PC, Mak GZ, Slidell MB, Johnson M, Landman MP, Markel TA, Leys CM, Cherney Stafford L, Draper J, Foley DS, Downard C, Skaggs TM, Lal DR, Gourlay D, Ehrlich PF. Venous Thromboembolism Prophylaxis in High-Risk Pediatric Trauma Patients. JAMA Surg. 2024 Oct 1;159(10):1149-1156. doi: 10.1001/jamasurg.2024.2487. PMID: 39083300; PMCID: PMC11292570.
41. Children's Hospitals' Solutions for Patient Safety . (2017a, April 5). *SPS Prevention Bundle: Venous Thromboembolism Prevention (VTE), Non-CVC Bundle*. Solutions for Patient Safety . https://static1.squarespace.com/static/62e034b9d0f5c64ade74e385/t/678aacde9e865b02d8a81ce7/1737141470628/Non+CVC_VTE_Bundle_SPS.pdf

EBOC Project Owner: Dr. Alexandra Wilson, MD and Dr. Ginna Priola, MD

Approved by the Pediatric Evidence-Based Outcomes Center Team
Next Full Review: July 2027

Guideline Revision History	
July 2023	Version 1.0 of VTE guideline developed and published to EBOC.
Feb 2025	Merged the VTE Prophylaxis guideline (intended for general population) with the VTE protocol specific to Trauma. Reconciled differences specifically to risk factors. Modified mobility definition for Baseline and Altered Mobility. (Reviewers: Priola, Wilson, Cowen)

EBOC Team:
Alexandra Wilson, ICU MD
Ginna Priola, Hematology MD
Carmen Garudo, EBOC PM
Reviewed by Orthopedics, Neurosurgery, PICU & Hematology groups
Jessica Cowen, Trauma APP
Michael Dougherty, Trauma PM

EBOC Leadership Committee:
Melissa Cossey, MD
Sarmistha Hauger, MD
Sheryl Yanger, MD
Tory Meyer, MD
Amanda Puro, MD
Meena Iyer, MD
Nilda Garcia, MD
Patty Click, MSN, RN, CPHQ
Lynsey Vaughan, MD

LEGAL DISCLAIMER: The information provided by Dell Children's Medical Center (DCMC), including but not limited to Clinical Pathways and Guidelines, protocols and outcome data, (collectively the "Information") is presented for the purpose of educating patients and providers on various medical treatment and management. The Information should not be relied upon as complete or accurate; nor should it be relied on to suggest a course of treatment for a particular patient. The Clinical Pathways and Guidelines are intended to assist physicians and other health care providers in clinical decision-making by describing a range of generally acceptable approaches for the diagnosis, management, or prevention of specific diseases or conditions. These guidelines should not be considered inclusive of all proper methods of care or exclusive of other methods of care reasonably directed at obtaining the same results. The ultimate judgment regarding care of a particular patient must be made by the physician in light of the individual circumstances presented by the patient. DCMC shall not be liable for direct, indirect, special, incidental or consequential damages related to the user's decision to use this information contained herein.