

Opinion: A Call for Protocols to Standardize VTE Prophylaxis Across Specialties to Improve Patient Safety and Outcomes

Gina Kwak, BS¹ and Kristy Hawley, MD, MPH^{1,2}

1 University of Colorado School of Medicine, Aurora, Colorado

2 Department of Surgery, University of Colorado Hospital, Aurora, Colorado

Background/Introduction: Venous thromboembolism (VTE) remains a leading cause of preventable morbidity and mortality in hospitalized patients. Despite well-established evidence supporting pharmacologic prophylaxis, clinical practice varies substantially across trauma surgery, emergency general surgery (EGS), gastroenterology (GI), and interventional radiology (IR). These differences are particularly evident during inter-service transitions, where anticoagulation is frequently interrupted due to procedural bleeding concerns, creating preventable patient safety risks.

Methods: A systematic review of major society guidelines published between 2000 and 2025 was conducted using PubMed and manual reference screening. Guidelines from trauma surgery, EGS, GI, and IR professional organizations were included. Comparative analysis focused on risk stratification frameworks, timing of prophylaxis initiation, pharmacologic agent selection, duration of therapy, and recommendations for holding and resuming anticoagulation around procedures.

Results: Trauma-focused guidelines consistently recommend early initiation of low-molecular-weight heparin within 24–48 hours once hemostasis is achieved, with standardized dosing and selective anti-Xa monitoring. In contrast, GI and IR guidelines emphasize procedural bleeding risk stratification, frequently recommending temporary interruption or individualized management of anticoagulation. EGS patients demonstrate VTE risk comparable to trauma populations but lack similarly standardized protocols. Key methodological limitations of the reviewed guidelines are summarized in Table 3. Across specialties, many recommendations are derived from expert consensus rather than high-quality prospective trials, contributing to variability in implementation and documentation of prophylaxis interruption and reinitiation.

Conclusions: Significant heterogeneity exists in VTE prophylaxis recommendations across specialties, particularly for shared procedures. This variability introduces preventable gaps in patient protection. Development of harmonized, cross-specialty, evidence-based protocols incorporating shared risk assessment tools and standardized documentation practices is necessary to improve continuity of care and reduce preventable VTE events. A unified, multidisciplinary approach to thromboprophylaxis represents an essential step toward safer inpatient care.

Table 3. Key Methods and Limitations of Studies.

Article	Methods	Limitations
Patel (2019)	Society of Interventional Radiology (SIR) consensus guidelines developed through expert panel review and a risk-stratification framework for periprocedural bleeding and thrombotic risk.	Primarily expert opinion without direct outcome data. Limited generalizability due to reliance on consensus rather than prospective trials.
Yorkgitis (2022)	Literature review conducted by members of the American Association for the Surgery of Trauma (AAST) and the American College of Surgeons Committee on Trauma. Consensus guidelines developed from available literature and expert opinion.	Limited to adult trauma patients ≥ 15 years. Sparse literature for Grade IV–V injuries limits strength of recommendations. Does not address post-discharge VTE prophylaxis for high-risk patients with prolonged immobility or persistent hypercoagulable states.
Ley (2020)	Algorithm developed from published prospective and randomized clinical trials and refined by the Western Trauma Association (WTA) Algorithm Committee with expert consensus input.	Designed for adult trauma patients ≥ 18 years; excludes pediatric population. Algorithm serves as guidance and does not replace clinical judgment due to heterogeneous evidence base.
Acosta (2016)	ASGE Standards of Practice Committee review of endoscopic literature to generate consensus-based recommendations for periprocedural antithrombotic management.	Primarily expert consensus. Limited high-quality prospective trials evaluating antithrombotic continuation versus interruption in endoscopic populations.
Rogers (2002)	Systematic review of three literature databases with 73 articles meeting inclusion criteria and incorporated into meta-analysis for trauma VTE risk and prophylaxis recommendations.	Evidence largely observational and derived from older studies. Limited pediatric representation. Some risk factors lacked statistical significance in meta-analysis.
Murphy (2018)	Narrative review of VTE prophylaxis in emergency general surgery (EGS), incorporating related patient cohorts such as emergency surgery populations within NSQIP datasets.	Few prospective EGS-specific trials. Heterogeneous evidence base. Optimal timing of prophylaxis initiation remains unclear.