

Primary prophylaxis for ambulatory patients with cancer receiving systemic therapy

Outpatient primary thromboprophylaxis recommendations depend on patient risk stratification. Classification of patients as being low-, intermediate- or high-risk for VTE should be based on a validated risk-assessment tool complemented by clinical judgment and experience. Thromboprophylaxis recommendations must be considered in the context of patient bleeding risk.

Table 3. Primary prophylaxis in ambulatory patients with cancer receiving systemic therapy

Thrombosis Risk	ASH Recommendation
Low risk for thrombosis ¹	The ASH guideline panel recommends against parenteral thromboprophylaxis. ✓
	The ASH guideline panel suggests against oral thromboprophylaxis with a DOAC (apixaban or rivaroxaban). ⓐ
Intermediate risk for thrombosis	The ASH guideline panel suggests against parenteral prophylaxis. ⓐ
	The ASH guideline panel suggests thromboprophylaxis with a DOAC (apixaban or rivaroxaban) or no thromboprophylaxis. ⓐ
High risk for thrombosis	The ASH guideline panel suggests parenteral thromboprophylaxis (LMWH) over no thromboprophylaxis. ⓐ
	The ASH guideline panel suggests thromboprophylaxis with a DOAC (apixaban or rivaroxaban) over no thromboprophylaxis. ⓐ

¹ Classification of risks for VTE should be based on a validated risk assessment tool (e.g., Khorana score) complemented by clinical judgment and experience.

For patients with multiple myeloma

For multiple myeloma patients receiving lenalidomide, thalidomide, or pomalidomide-based regimens, the ASH guideline panel **suggests** using low-dose acetylsalicylic acid (ASA) or fixed low-dose VKA or LMWH. ⓐ¹

¹ Treatment with ASA, low-dose VKA, or LMWH depends on patient preferences and the cost-effectiveness, which may vary across settings.

Primary prophylaxis for patients with cancer with central venous catheter

For patients with cancer and a central venous catheter (CVC), the ASH guideline panel **suggests against** using parenteral or oral thromboprophylaxis. ⓐ¹

¹ The recommendation applies to fixed- and adjusted-dose VKA. Thromboprophylaxis may be considered for selected patients with cancer who are considered at high risk for VTE or for patients receiving thalidomide-, lenalidomide-, or pomalidomide-based regimens for myeloma.

Strength of Recommendations

✓	Strong recommendations - Most individuals should follow the recommended course of action. Formal decision aids are not likely to be needed to help individual patients make decisions consistent with their values and preferences.
ⓐ	Conditional recommendations - Recognize that different choices will be appropriate for individual patients and that you must help each patient arrive at a management decision consistent with his or her values and preferences. Decision aids may be useful in helping individuals to make decisions consistent with their individual risks, values and preferences.

How to Use This Pocket Guide


ASH pocket guides are primarily intended to help clinicians make decisions about diagnostic and treatment alternatives. The information included in this pocket guide is not intended to serve or be construed as a standard of care. Clinicians must make decisions on the basis of the unique clinical presentation of an individual patient, ideally through a shared process that considers the patient's values and preferences with respect to all options and their possible outcomes. Decisions may be constrained by realities of a specific clinical setting, including but not limited to institutional policies, time limitations, or unavailability of treatments. ASH pocket guides may not include all appropriate methods of care for the clinical scenarios described. Evidence relevant to the guideline this pocket guide is based on is routinely reviewed. ASH will update derivative resources, including this pocket guide, accordingly. Following the recommendations outlined in this pocket guide cannot guarantee successful outcomes. ASH does not warrant or guarantee any products described in this pocket guide.

The complete American Society of Hematology 2021 Guidelines for Management of Venous Thromboembolism: Prevention and Treatment in Patients with Cancer¹ include additional remarks and contextual information that may affect clinical decision making. To learn more about these guidelines, visit [hematology.org/VTEguidelines](https://www.hematology.org/VTEguidelines).

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Conflict of interest declarations for Drs. Wang, Schaefer, and Carrier may be found at [hematology.org/pocketguidescoi](https://www.hematology.org/pocketguidescoi).

¹ Lyman GH, Carrier M, Ay C, Di Nisio M, Hicks LK, Khorana AA, Leavitt AD, Lee AYY, Macbeth F, Morgan RL, Noble S, Sexton EA, Stenehjem D, Wiercioch W, Kahale LA, Alonso-Coello P. American Society of Hematology 2021 guidelines for management of venous thromboembolism: prevention and treatment in patients with cancer. *Blood Adv* 2021; 5(4): 927–974. doi: <https://doi.org/10.1182/bloodadvances.2020003442>



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For expert consultation on VTE in patients with cancer and other hematologic diseases, submit a request to the ASH Consult a Colleague program at www.hematology.org/Consult (ASH members only).

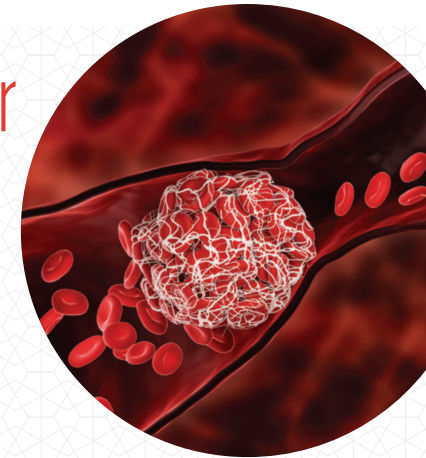


ASH CLINICAL PRACTICE GUIDELINES
VENOUS THROMBOEMBOLISM (VTE)

POCKET GUIDE

Primary Prophylaxis of Venous Thromboembolism (VTE) in Patients with Cancer

A POCKET GUIDE FOR THE CLINICIAN
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The recommendations in this guide are based on the American Society of Hematology 2021 Guidelines for Management of Venous Thromboembolism: Prevention and Treatment in Patients with Cancer

Context





Patients with cancer are at increased risk of VTE, as well as major bleeding. Any consideration of thromboprophylaxis for patients with active cancer¹ should be based on an assessment of the patient's individual risk for thrombosis and major bleeding after full discussion of the potential benefits and harms. The information in this pocket guide is intended to support patients, clinicians, and other health care professionals in their decisions about the prevention of VTE in patients with cancer. This pocket-guide contains information specifically pertaining to mechanical and pharmacological prophylaxis in hospitalized medical patients with cancer, those undergoing a surgical procedure, and ambulatory patients receiving cancer chemotherapy. A pocket guide titled **Treatment of VTE in Patients with Cancer** addressing the initial, short-term, and long-term treatment of VTE in cancer patients is also available.

¹ Active cancer is defined as (1) nonsquamous cell or basal cell invasive cancer diagnosed within 6 months, (2) cancer treated within the previous 6 months, or (3) recurrent or metastatic cancer.

Primary prophylaxis for hospitalized medical patients with cancer

Hospitalized medical patients with cancer are considered at greater risk for VTE than nonhospitalized patients with cancer.





Table 1. Primary prophylaxis for hospitalized medical patients with cancer

Options	ASH Recommendation	Comments
Need for thromboprophylaxis		
Thromboprophylaxis vs. no thromboprophylaxis	Thromboprophylaxis 	Some subgroups including patients admitted briefly for elective chemotherapy and those receiving palliative or end-of-life care, may not benefit from VTE prophylaxis if their baseline risk of VTE is low or the associated risk of major bleeding is high
Type of thromboprophylaxis		
Pharmacological thromboprophylaxis vs. mechanical or combined mechanical and pharmacological thromboprophylaxis	Pharmacological thromboprophylaxis 	Hospitalized patients with cancer without VTE at high risk for major bleeding may be considered for mechanical thromboprophylaxis without pharmacologic thromboprophylaxis. A combination of pharmacological and mechanical prophylaxis may also be considered for selected patients who are considered at very high risk for VTE (e.g., patients with cancer and sustained and prolonged immobilization).
Type of pharmacological thromboprophylaxis		
LWMH vs. UFH	LMWH 	UFH is preferred over LMWH for patients with creatinine clearance <30 mL/min.
Post discharge thromboprophylaxis		
Discontinue vs. continue	Discontinue on discharge 	Continuation of thromboprophylaxis following discharge may be considered for selected ambulatory patients with cancer receiving systemic treatment and whose risk of VTE is considered to outweigh the risk of bleeding

Primary prophylaxis for patients with cancer undergoing surgery

Patients with cancer undergoing surgery can have an increased risk of thrombosis, as both cancer and surgery are significant risk factors for VTE. However, surgery can increase the risk of bleeding, which should be taken into account as well.

Table 2. Primary prophylaxis for patients with cancer undergoing surgery


Bleeding Risk / Thrombosis Risk	ASH Recommendation
Low Bleeding Risk	The ASH guideline panel suggests using pharmacological over mechanical thromboprophylaxis 
High Bleeding Risk	The ASH guideline panel suggests using mechanical over pharmacological thromboprophylaxis 
High Thrombosis Risk	The ASH guideline panel suggests using a combination of mechanical and pharmacologic thromboprophylaxis over either 1) mechanical prophylaxis alone  or 2) pharmacologic thromboprophylaxis alone  Note that this recommendation does not apply to those who are also at a high risk for bleeding

As there are no standardized definitions of bleeding risks for each individual procedure, stratification of procedures based on their underlying risk of bleeding should be based on the clinician's judgement. If needed, clinicians can refer to resources such as the 2022 Chest Guideline¹ or ISTH Guidance² for suggested risk stratification for procedure bleeding risks.

¹ Spyropoulos AC, Brohi K, Caprini J, Samama CM, Siegal D, Tafur A, Verhamme P, Douketis JD; SSC Subcommittee on Perioperative and Critical Care Thrombosis and Haemostasis of the International Society on Thrombosis and Haemostasis. Scientific and Standardization Committee Communication: Guidance document on the periprocedural management of patients on chronic oral anticoagulant therapy: Recommendations for standardized reporting of procedural/surgical bleed risk and patient-specific thromboembolic risk. *J Thromb Haemost.* 2019; 17(11):1966-1972. doi: 10.1111/jth.14598


² Douketis JD, Spyropoulos AC, Murad MH, Arcelus JJ, Dager WE, Dunn AS, Fargo RA, Levy JH, Samama CM, Shah SH, Sherwood MW, Tafur AJ, Tang LV, Moores LK. Executive Summary: Perioperative Management of Antithrombotic Therapy: An American College of Chest Physicians Clinical Practice Guideline. *Chest.* 2022; 162(5):1127-1139. doi: 10.1016/j.chest.2022.08.004

DRUG CHOICE FOR PHARMACOLOGIC THROMBOPROPHYLAXIS

For patients with cancer undergoing a surgical procedure, the ASH guideline panel **suggests** using LMWH or fondaparinux for thromboprophylaxis rather than UFH,  ¹ while there are no data available to comment on use of VKAs or DOACs in this setting.


¹ UFH is generally preferred over LMWH or fondaparinux for patients with cancer and creatinine clearance < 30 mL/min. If planning for extended thromboprophylaxis (continuing pharmacological thromboprophylaxis at home), the guideline panel suggests the use of LMWH.

TIMING OF PERIOPERATIVE PHARMACOLOGICAL THROMBOPROPHYLAXIS

For patients with cancer undergoing an elective surgical procedure, the ASH guideline panel **suggests** initiating thromboprophylaxis postoperatively rather than preoperatively.  ¹

¹ The panel defined preoperative thromboprophylaxis as a dose of LMWH or UFH given 12 hours (or the evening before) prior to the procedure and not the dose given at the time of the surgery (or on the operating table). The panel did not recognize a large advantage to preoperative prophylaxis and took a precautionary approach because of the bleeding and logistical considerations with neuraxial anesthesia. Patients with cancer already hospitalized prior to the surgery are suggested to receive thromboprophylaxis.

EXTENDED THROMBOPROPHYLAXIS

For patients with cancer who had undergone a major abdominal/pelvic surgical procedure, the ASH guideline panel **suggests** continuing pharmacological thromboprophylaxis post-discharge rather than discontinuing at the time of hospital discharge.  ¹

¹ This recommendation should not be extended to other surgical procedures given lack of evidence.