



Executive Summary: Risk, Prevention and Diagnosis of Venous Thromboembolism Disease in Foot and Ankle Surgery and Injuries Requiring Immobilization (March 2015)

Herein we summarize the findings of a clinical consensus statement sponsored by the American College of Foot and Ankle Surgeons on the topic of risk, prevention and diagnosis of venous thromboembolism disease (VTED) in foot and ankle surgery and in injuries requiring immobilization. A six-member panel utilized a modified Delphi method to try and reach consensus on 22 statements relating to VTED prophylaxis/diagnosis based on the best available evidence, clinical experience and common sense.

The panel determined that the following statements were appropriate:

- Routine chemical prophylaxis is not warranted in foot/ankle surgery or injuries requiring immobilization.
- The decision to use chemical prophylaxis should be based on each patient's unique risk-benefit analysis. This involves carefully weighing the risks and consequences of bleeding against those of developing VTED.
- When risk stratifying patients, greater emphasis should be placed on the patient's own personal risk factors for developing VTED and on whether or not they will be rigidly immobilized, and less emphasis should be given to the type of foot/ankle surgery planned.
- Factors that confer the *greatest risk* of developing VTED are: 1) a personal history of VTED, 2) active or recent cancer, 3) a hypercoagulable state, and 4) lower extremity immobilization for > 4 weeks.
- Other factors that increase risk for VTED include obesity (BMI>30 kg/m²), advanced age (>60yrs), use of oral contraceptive pills/hormone replacement therapy, family history of VTED, presence of varicose veins, injuries with a high injury severity score, diabetes mellitus or two or more comorbidities, non-weightbearing status, hospitalization, bed rest, use of general anesthesia, Achilles tendon ruptures (w/ and w/o repair), ankle fractures (w/ and w/o repair), total ankle replacement surgery, and hindfoot arthrodesis surgery.
- A multimodal approach to VTED prophylaxis should be implemented for patients at increased risk. This will include addressing any modifiable risk factors, using mechanical forms of prophylaxis (e.g., compression garments), early mobilization and careful consideration of the use of chemical prophylaxis.
- Use of low-molecular weight heparin (LMWH) is preferred when chemical prophylaxis is decided upon. In most instances, LMWH should be initiated shortly after the surgery/injury and continued until such time as the ankle is mobilized again and/or the patient is weightbearing.
- Aspirin should not be used as an isolated prophylactic measure in high-risk patients.
- Rarely should providers request that an inferior vena cava filter be placed, and this should only be done for patients at highest risk for VTED when chemical and mechanical prophylaxis are not options.



- The decision regarding use and method(s) of prophylaxis adopted should be agreed upon by the physician and patient after a discussion of the potential benefits and harms as they relate to the individual. This should preferably take place during the preoperative visit or in the immediate post-injury setting. The use and/or methods of VTED prophylaxis selected should be revisited during the course of care if/when the patient's risk level changes.
- When clinical suspicion for lower extremity deep vein thrombosis (DVT) exists, the patient's probability for DVT should first be established (e.g., Wells criteria [Table 1]).
- Obtaining a D-dimer level is usually only appropriate in patients with a low probability for DVT.
- In cases of moderate or high probability for DVT, a venous duplex ultrasound of the suspected limb should be ordered.

Table 1. Wells Criteria.

Clinical Variable	Score
Active cancer (treatment ongoing or within previous 6 months or palliative)	1
Paralysis, paresis, or recent plaster immobilization of the lower extremities	1
Recently bedridden for 3 days or more, or major surgery within the previous 12 weeks	1
Localized tenderness along the distribution of the deep venous system	1
Entire leg swelling	1
Calf swelling at least 3 cm larger than that on the asymptomatic leg (measured 10 cm below the tibial tuberosity) [†]	1
Collateral superficial veins (nonvaricose)	1
Pitting edema confined to the symptomatic leg	1
Previously documented DVT	1
Alternative diagnosis at least as likely as DVT	-2

Abbreviation: DVT, deep vein thrombosis.

• Scoring method indicates high probability if score is 3 or more; moderate if score is 1 or 2; and low if score is 0 or less.

[†] In patients with symptoms in both legs, the more symptomatic leg was used.

From Wells PS, Owen C, Doucette S, Fergusson D, Tran H. Does this patient have deep vein thrombosis? JAMA 295:199-207, 2006. Copyright © 2006 American Medical Association. All rights reserved.