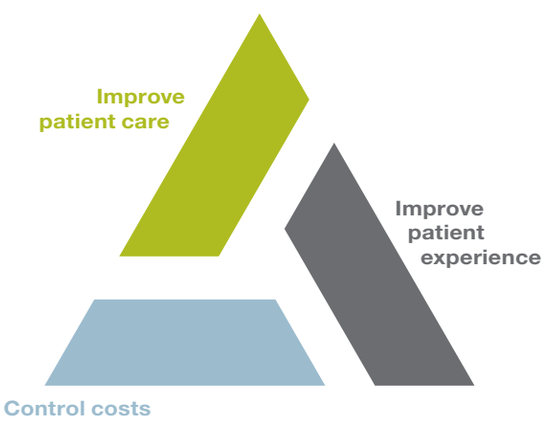
Hemostasis Innovation is Here.

Clinical and economic impact of D-dimer testing as part of a diagnostic strategy for venous thromboembolism exclusion



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The role of D-dimer testing in the evaluation of venous thromboembolism

Patients suspected of a venous thromboembolism (VTE), such as a deep venous thrombosis (DVT) or pulmonary embolism (PE), must be evaluated quickly to determine if anticoagulant therapy is warranted.

Though D-dimer testing with pretest probability (PTP) scoring has existed for more than a decade, it remains underutilized for VTE evaluation. However, a VTE diagnostic strategy that incorporates D-dimer testing can enhance patient care and reduce cost.

Limitations of performing imaging alone

80–90% of patients with suspected VTE do not have a thrombosis, leading to:[1,2]

- Performance of unnecessary imaging
- Increased hospital costs
- Increased radiation exposure[2]
- Increased risk for nephropathy, especially in the elderly[3]

Benefits of D-dimer testing

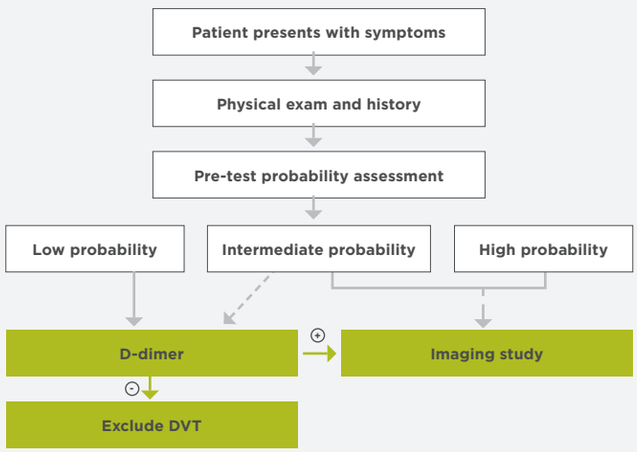
- Excellent negative predictive value (NPV) for exclusion of VTE
- Fast time to result, available 24/7
- Cost-efficient
- Limited patient risk

D-dimer testing recommended during testing of VTE

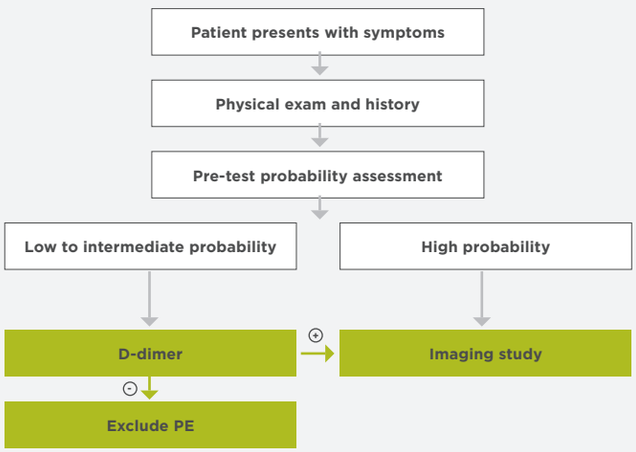
American Society of Hematology (ASH) recommends a VTE evaluation algorithm that incorporates the sequential use of PTP scoring, D-dimer testing, and imaging studies.[4] Only patients with high PTP or low and moderate/intermediate PTP with a positive D-dimer result should undergo imaging.

In patients with a low or moderate PTP and negative D-dimer result, VTE can be excluded, eliminating the need for imaging.

DVT diagnostic algorithm[7]



PE diagnostic algorithm[7]



Yet D-dimer testing is underutilized in many VTE evaluation scenarios[5]

Patients suspected of VTE	Low probability with venous duplex scan	Low probability with CT scan	Low probability with V/Q scan
D-dimer testing not included in VTE evaluation	84.4% of cases	37.5% of cases	78.6% of cases

CT=Computed tomography
V/Q=Pulmonary ventilation/perfusion

HemosIL® D-Dimer assays offer 100% NPV and 100% sensitivity for the safe exclusion of VTE, in conjunction with a PTP score.*

*On ACL TOP Family and ACL TOP Family 50 Series Hemostasis Testing systems.

D-dimer testing in VTE evaluation decreases total diagnostic cost[6]

The implementation of a VTE diagnostic strategy decreases the number of imaging studies performed, leading to a reduction in related costs. Because D-dimer testing is significantly less expensive than imaging, total diagnostic cost is decreased.

Costs before and after VTE diagnostic strategy implementation*†

		Before VTE Diagnostic Strategy			After VTE Diagnostic Strategy			
Patient population	Annual VTE cases (n)	Imaging cases (n)	D-dimer testing cases (n)	Total VTE diagnostic cost ($)	Imaging cases (n)	D-dimer testing cases (n)	Total VTE diagnostic cost ($)	Total diagnostic cost savings ($)
PE	1,500	1,500	0	972,000	906	1,396	606,676	365,324
DVT	3,500	3,500	0	644,000	2,453	2,810	490,628	153,372
Total	**5,000**	**5,000**	**0**	**1,616,000**	**3,359**	**4,206**	**1,097,304**	**518,696**

*Estimated diagnostic cost reduction, based on 5,000 suspected VTE cases.
†This model is provided as an approximation of future savings. The results are hypothetical and may not reflect the actual savings in your institution.

A VTE diagnostic strategy, incorporating D-dimer testing, offers clinical and economic benefits.

D-dimer testing is key to an effective and efficient VTE diagnostic strategy

Improve patient care

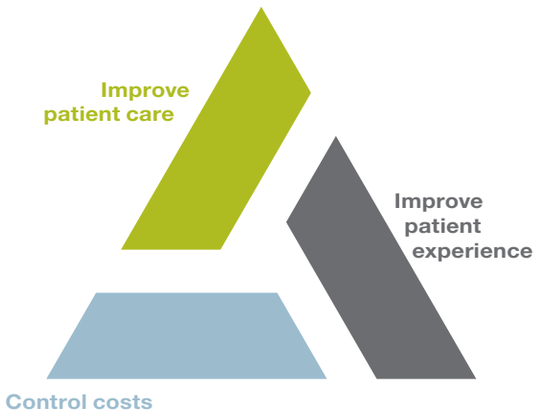
- Reduces unnecessary imaging and associated radiation exposure[2]

Improve patient experience

- Reduces time to clinical decision and treatment[7]
- Available 24 hours a day, 7 days a week[7]

Control costs

- Reduces overall diagnostic cost
- Reduces unnecessary delays using imaging resources
- Reduces emergency department length of stay[8] and hospital admissions[9]



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