Venous Thromboembolism Is Associated With Greater 90-Day Morbidity and Inpatient Utilization Among Hospitalized Patients With Diffuse Large B-Cell Lymphoma: A Propensity-Matched TriNetX Analysis

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BACKGROUND

- Venous thromboembolism (VTE) is among the most frequent non-hematological complications of aggressive lymphoma.
- In DLBCL, tumor burden, central venous catheters, immobilization and R-CHOP-based therapy all contribute to thrombotic risk.
- Most evidence addresses incidence and long-term survival. The short-term burden of VTE among patients already requiring admission is poorly quantified.
- Readmission, critical care and organ dysfunction within 90 days drive patient harm and cost, yet have not been characterized in a matched DLBCL cohort.

OBJECTIVE

To evaluate the association between VTE and 90-day morbidity and inpatient healthcare utilization among hospitalized adults with DLBCL.

Specific questions

- Do patients with VTE return to hospital more often, and sooner?
- Is any excess burden driven by organ dysfunction, bleeding or critical illness?
- Does 90-day mortality differ once baseline risk is balanced?

METHODS

- **Design —** retrospective cohort, TriNetX Research Network, 109 HCOs.
- **Population —** adults ≥18 y, DLBCL (ICD-10 C83.3x), ≥1 inpatient encounter, 2016–2025.
- **Exposure —** VTE: pulmonary embolism (I26.x) or deep vein / other venous thrombosis (I82.x).
- **Index & follow-up —** first qualifying inpatient encounter; outcomes assessed days 1–90.
- **Matching —** 1:1 propensity score on demographics, comorbidities, prior utilization and antineoplastic exposure.

OUTCOMES & ANALYSIS

- **Primary —** subsequent inpatient encounter within 90 days.
- **Secondary —** critical care services, all-cause mortality, acute kidney injury, sepsis, bleeding.
- **Analysis —** risk ratios with 95% CI; Kaplan–Meier estimates with log-rank test; number-of-instances analysis with t-test.
- **Balance —** all standardized differences <0.03 after matching.

RESULTS

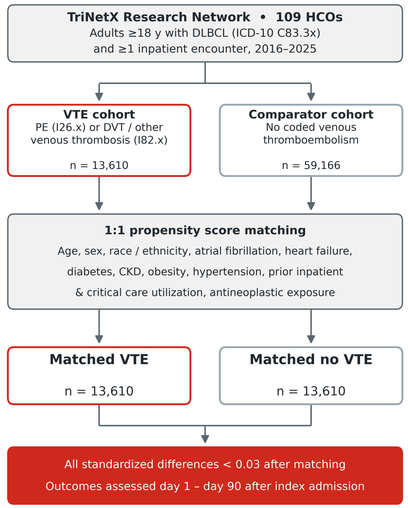
61.8% vs 54.3%
90-day inpatient re-encounter
RR 1.14 (1.12–1.16)
p<0.001

32 vs 51 days
Median time to next inpatient encounter (Kaplan–Meier)
log-rank p<0.001

4.5 vs 3.9
Mean inpatient encounters per readmitted patient
p<0.001

7.7% vs 7.4%
90-day all-cause mortality
not significantly different
p=0.224

Cohort assembly



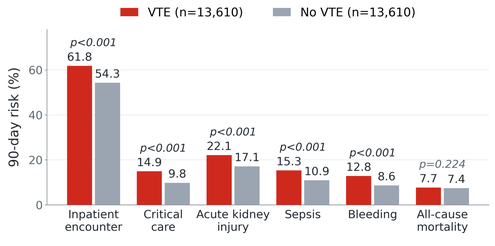
90-day outcomes after matching

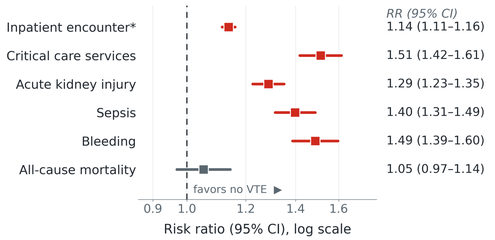
Outcome	VTE n (%)	No VTE n (%)	Risk ratio (95% CI)	p
Inpatient encounter*	8,416 (61.8)	7,395 (54.3)	1.14 (1.12–1.16)	<0.001
Critical care services	2,024 (14.9)	1,338 (9.8)	1.51 (1.42–1.61)	<0.001
Acute kidney injury	3,003 (22.1)	2,334 (17.1)	1.29 (1.23–1.35)	<0.001
Sepsis	2,082 (15.3)	1,489 (10.9)	1.40 (1.31–1.49)	<0.001
Bleeding	1,737 (12.8)	1,167 (8.6)	1.49 (1.39–1.60)	<0.001
All-cause mortality	1,054 (7.7)	1,001 (7.4)	1.05 (0.97–1.14)	0.224

*Primary outcome. Both cohorts n = 13,610 after 1:1 propensity score matching. p from z-test for risk difference.

Mean inpatient encounters over 90 days among patients with ≥1 encounter: 4.54 vs 3.88 (t-test p<0.001).
Median time to next inpatient encounter 32 vs 51 days (Kaplan–Meier).

Risk by cohort and risk ratios





CONCLUSIONS

Among hospitalized patients with DLBCL, VTE was associated with greater 90-day inpatient utilization and higher morbidity, but not increased short-term mortality.

These findings underscore the clinical and resource burden of VTE in this population.

LIMITATIONS

- VTE timing was not anchored relative to the index hospitalization; associations should not be interpreted as causal.
- The comparator cohort may not have fully excluded isolated venous thrombosis, introducing potential exposure misclassification.
- Important disease-severity variables such as lymphoma stage, IPI, performance status, treatment line and anticoagulant exposure were unavailable, leaving potential residual confounding.
- Outcomes, including vital status, were derived from coded EHR data and may be incompletely captured or misclassified.

REFERENCES

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