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The 12th World Congress on CONTROVERSIES IN MULTIPLE MYELOMA (COMy)

# External Validation of the SAVED Score in a Canadian Regional Cancer Centre Cohort: A Real-World Analysis


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## INTRODUCTION

Venous thromboembolism (VTE) is a major complication of lenalidomide-based therapy in multiple myeloma (MM), with reported incidence of 3–26%. Risk-stratified thromboprophylaxis is recommended by international guidelines, yet the tools guiding these recommendations have not been validated in community cancer centers, where most patients receive care.

## OBJECTIVES

- Externally validate the SAVED score (1) in a consecutive real-world cohort of lenalidomide-treated myeloma patients at a Canadian community cancer center.
- Determine whether SAVED score risk classification independently predicts VTE after adjusting for clinical covariates using multivariate Cox regression.

## METHODS

Design & setting: Single-center retrospective cohort. R.S. McLaughlin Durham Regional Cancer Centre, Lakeridge Health, Oshawa, Ontario, Canada (November 2012 – November 20, 2025).

Patients: All adults with MM commencing lenalidomide. Excluded: therapeutic anticoagulation (NOAC/LMWH/warfarin; n=29) and arterial events only (n=7).

Outcome: Confirmed venous thromboembolism (DVT, PE, or SVT) during lenalidomide therapy, verified by objective imaging.

SAVED score: Calculated using five validated components. Any dexamethasone use scored +1 (≤160 mg/month) or +2 (>160 mg/month). Classification: low risk (SAVED 0–1) vs high risk (SAVED ≥2).

Statistics: Fisher exact test; Kaplan–Meier with log-rank; ROC/AUC (bootstrap 95% CI, M=2,000). Cox proportional hazards regression (SAVED score, Sex, CrCL, Hb)

### THE SAVED SCORE

| | COMPONENT | POINTS |
|---|---|---|
| S | Surgery (within 90 days) | +2 |
| A | Asian Race | -3 |
| V | VTE History | +3 |
| E | Eighty (Age ≥ 80) | +1 |
| D | Dexamethasone (Standard dose-120–160 mg/m) | +1 |
| | Dexamethasone (High dose-≥160 mg/m) | +2 |

**RISK STRATIFICATION**

**HIGH RISK SCORE ≥ 2** | **LOW RISK SCORE 0–1**

## RESULTS

n = 201 (median age 73 years; 55.7% male; 27.9% high risk; 182 (90.5%) received ASA prophylaxis). Median follow-up was 1.2 years (range 0.1–9.2).

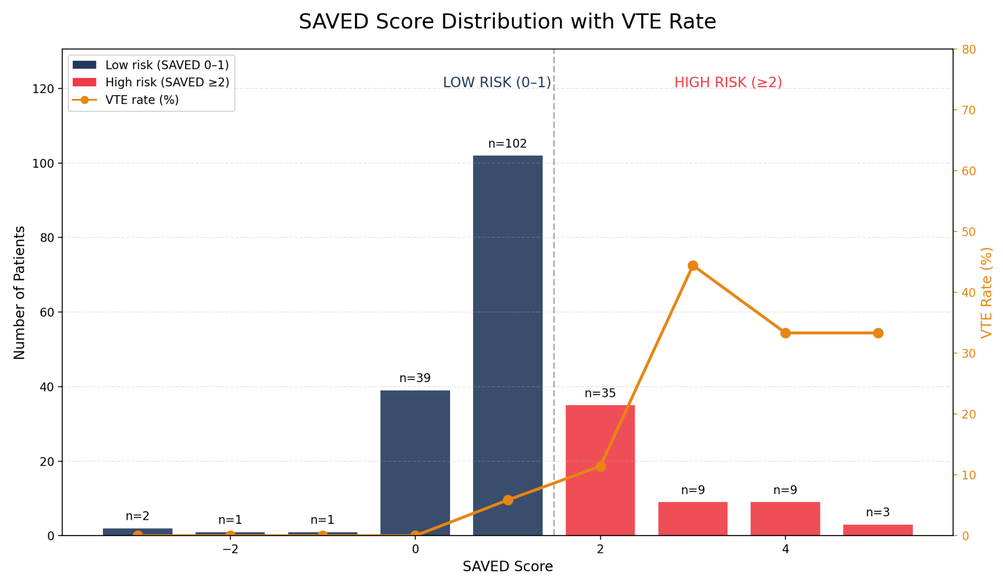


**Figure 1**. Frequency of SAVED score and VTE rate observed at each SAVED

**VTE by SAVED Risk Group**

**21.4% vs 4.1%**
Observed VTE rate in high vs low SAVED groups

| SAVED group | n | VTE, n (%) |
|---|---|---|
| **Low risk (0–1)** | 145 | 6 (4.1%) |
| **High risk (≥2)** | 56 | **12 (21.4%)** |

**High-risk patients had a markedly higher VTE rate.**

**Table 1.** High-risk SAVED patients had a markedly higher observed VTE rate than low-risk patients (21.4% vs 4.1%).

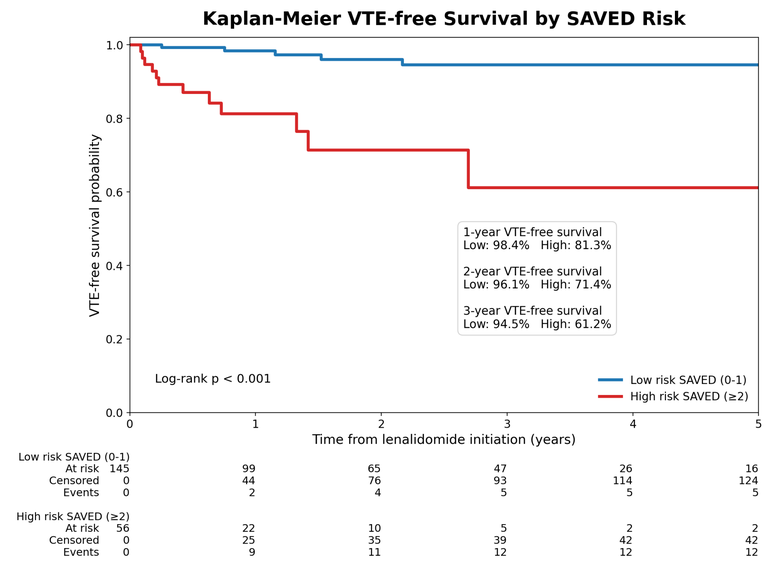


**Figure 2.** Kaplan–Meier analysis demonstrated significantly worse VTE-free survival among high-risk patients (SAVED ≥2) compared with low-risk patients (log-rank p<0.001).

**n = 201** Final Cohort | **OR 6.32** 95% CI 2.24–17.82 | **AUC 0.780** 95% CI 0.676–0.877 | **HR 9.35** 95% CI 3.19–27.42

## CONCLUSION

- The SAVED score successfully stratified VTE risk in a Canadian community cancer center cohort: high-risk patients (SAVED ≥2) demonstrated a 6.32-fold greater odds and a 9.35-fold greater hazard of VTE compared to low-risk patients.
- AUC 0.780 represents acceptable-to-good discrimination, consistent with published academic centre validations, confirming the score's generalizability to community practice.
- SAVED score was the only independent predictor of VTE in multivariate Cox analysis — sex, renal function, and hemoglobin added no independent predictive value after SAVED adjustment, confirming the validated composite captures all clinically relevant risk.
- KM curves demonstrate marked, durable separation: at 3 years, 61.2% of high-risk vs 94.5% of low-risk patients remained VTE-free, highlighting the cumulative clinical impact of score-guided risk stratification.
- These findings support SAVED score-guided thromboprophylaxis in community practice settings, providing real-world evidence to support guideline implementation where most myeloma patients receive their care.
- **Future directions:** Prospective evaluation of SAVED-guided DOAC vs aspirin prophylaxis; cost-effectiveness analysis of risk-stratified approaches in the community cancer centre setting; evaluation of SAVED performance in next-generation IMiD and BCMA-directed regimens.


## ACKNOWLEDGEMENTS

The authors thank all patients treated at the Durham Regional Cancer Centre and the multidisciplinary hematology team at Lakeridge Health, Oshawa.


## REFERENCES


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