

Disseminated Intravascular Coagulation in Multiple Myeloma: A Nationwide Analysis of Mortality, Organ Failure, and Healthcare Utilization

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INTRODUCTION

Disseminated intravascular coagulation (DIC) is an uncommon but severe hematologic complication in multiple myeloma (MM). Its impact on in-hospital mortality, clinical complications, and resource utilization remains poorly characterized at a national level.

AIM

We aimed to compare outcomes of hospitalized MM patients with and without DIC using a National Inpatient Sample (NIS) database.

METHOD

Data Source: Cross-sectional analysis of the 2018–2021 NIS, incorporating discharge weights to generate nationally representative estimates.

Study Cohort: Adult hospitalizations (age ≥18 years) with a primary or secondary diagnosis of multiple myeloma (ICD-10-CM C90.0) were identified and stratified by DIC status (D65).

Outcomes: Primary outcomes were in-hospital mortality, LOS, and inflation-adjusted hospital charges. Secondary outcomes included major organ complications, thrombotic and bleeding events, shock, and non-home discharge.

Adjusted Analysis: Survey-weighted regression models adjusted for demographics, admission and hospital characteristics, and relevant comorbidities. Logistic regression was used for binary outcomes and linear regression for continuous outcomes.

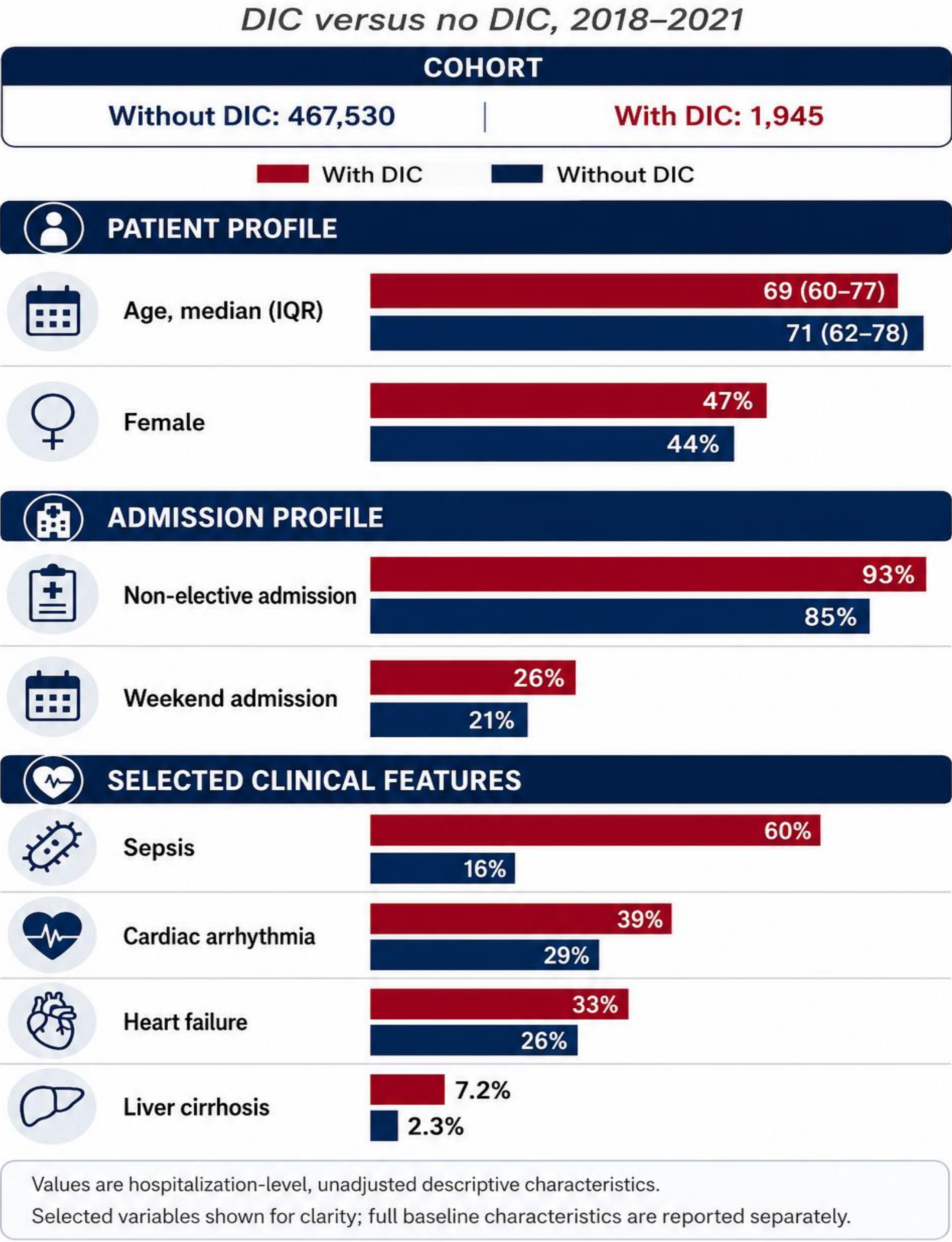
Statistical Reporting: Categorical and continuous variables were compared using design-based tests. Results were reported as adjusted odds ratios or β coefficients with 95% CIs. Analyses were performed in R 4.5.0 using the survey package.

CONCLUSIONS

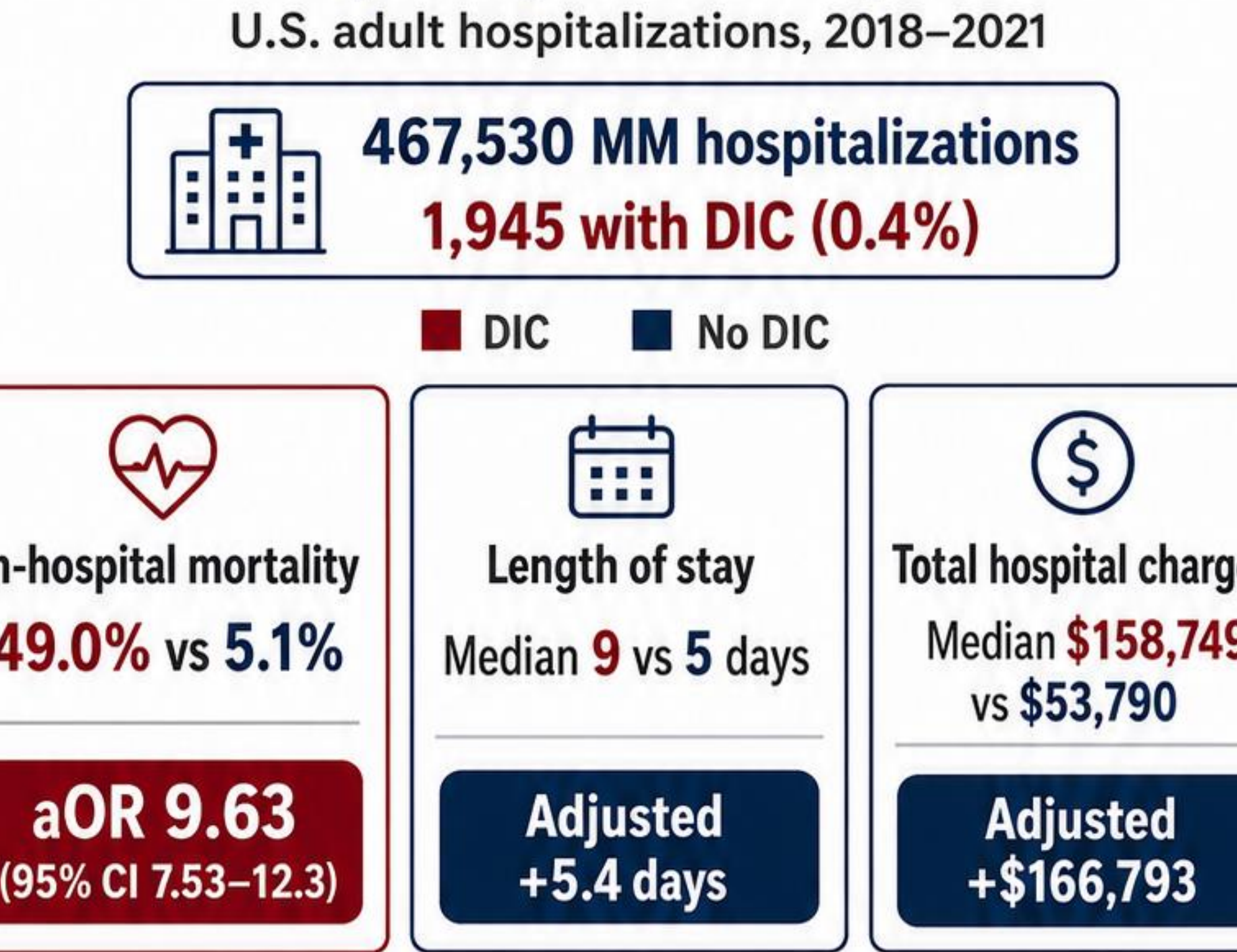
MM patients with DIC experienced markedly worse inpatient outcomes and significantly greater resource utilization compared with those without DIC, highlighting DIC as a critical prognostic marker in MM hospitalizations and underscoring the need for early recognition and aggressive multidisciplinary management.

RESULTS

Selected Baseline Profile of MM Hospitalizations



DIC in Multiple Myeloma Hospitalizations



ADJUSTED ODDS OF ADVERSE OUTCOMES			
Outcome		Raw rates (DIC vs no DIC)	aOR (95% CI)
	Acute hepatic failure	21% 1.2%	aOR 13.7 (9.80–19.3)
	Mechanical ventilation	42% 4.2%	aOR 7.70 (5.96–9.94)
	Non-home discharge	—	aOR 5.64
	Septic shock	40% 4.2%	aOR 4.79 (3.54–6.48)
	Cardiac arrest	9.8% 1.1%	aOR 4.41 (3.00–6.49)
	Respiratory failure	57% 18%	aOR 4.25 (3.34–5.41)
	Acute kidney injury	73% 35%	aOR 4.13 (3.24–5.28)
	Renal replacement therapy	28% 8.7%	aOR 3.76 (2.71–5.22)
	Hemorrhagic stroke	3.3% 0.8%	aOR 3.54 (1.84–6.82)
	Major bleeding	19% 5.0%	aOR 3.32 (2.50–4.40)
	Ischemic stroke	4.9% 1.7%	aOR 2.92 (1.81–4.71)

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CONTACT INFORMATION

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REFERENCES

Bao R, Fan M, Hu M, Li L, Hasichaolu. Risk Factors and Predictive Model for Disseminated Intravascular Coagulation in Patients with Multiple Myeloma. Clin Appl Thromb Hemost. 2025 Jan-Dec;31:10760296251316873

Albagoush SA, Shumway C, Azevedo AM. Multiple Myeloma. [Updated 2023 Jan 30]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2026 Jan