

Autologous Stem Cell Transplantation and Inpatient Complications in Multiple Myeloma

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Background

- Multiple myeloma (MM) is a clonal plasma cell malignancy for which, despite advances in current therapies, autologous stem cell transplantation (ASCT) remains a mainstay of treatment
- Understanding clinical outcomes that patients with MM face during ASCT is essential, especially as providers determine which patients are candidates for the procedure
- We compare inpatient outcomes of MM patients undergoing ASCT compared with non-ASCT MM hospitalizations

Methods

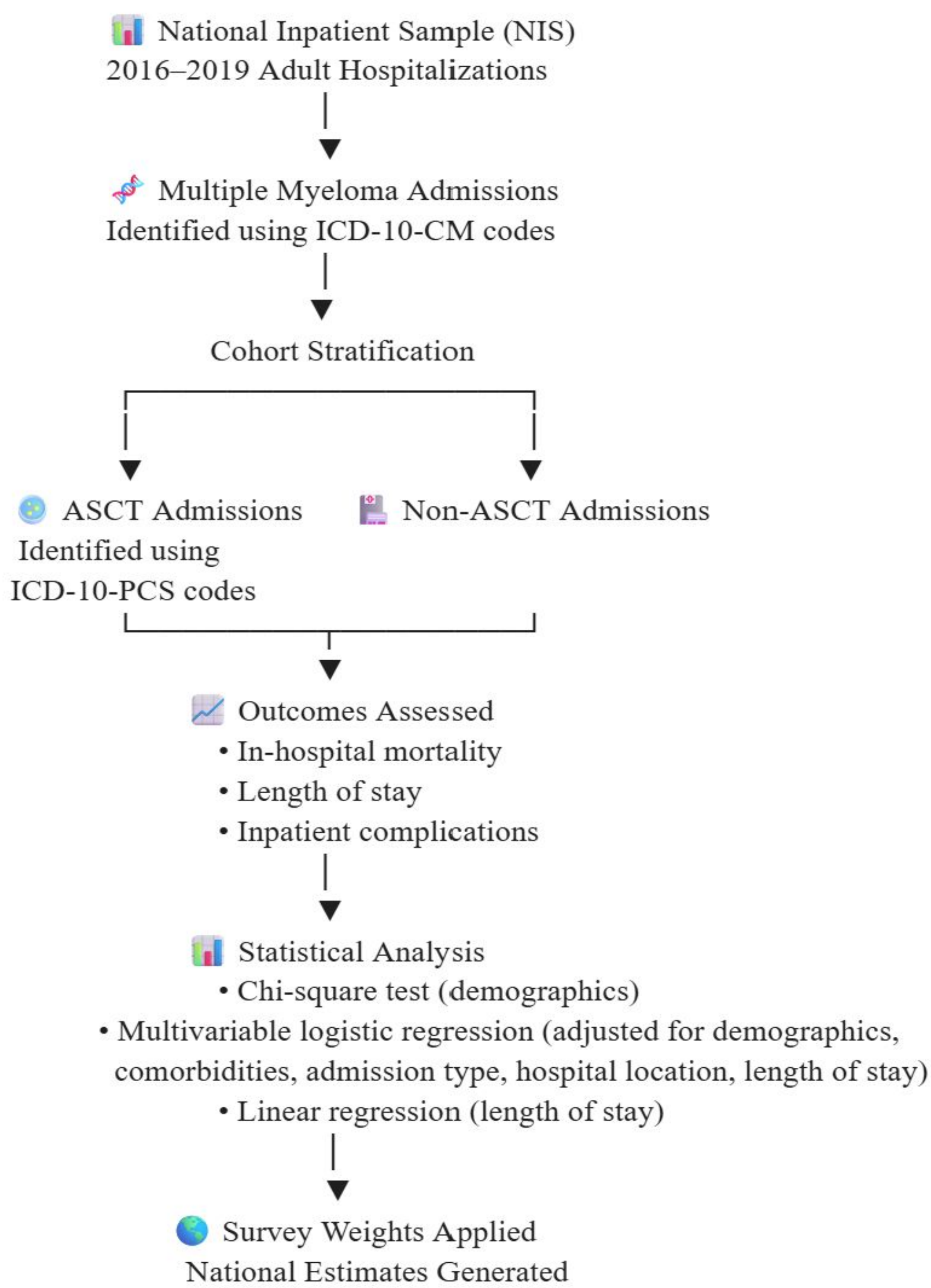


Table 1: Demographics and Clinical Characteristics of Study Population

	Positive ASCT n= 93770	Negative ASCT n= 336680	P value
Age: mean	67 years	70 years	<0.001
Race: n (%):			<0.001
Caucasian	59%	65%	
African American	25%	22%	
Hispanic	9%	8%	
Asian or Pacific Isander	3%	2%	
Other	5%	3%	
Gender: n(%):			<0.001
Female	45%	44%	
Male	55%	56%	<0.001
Insurance status: n(%)			
Medicare	60%	70%	
Medicaid	8%	6%	
Private Insurance	28%	20%	
Self-pay	1%	1%	
No charge	0.2%	0.1%	
Others	2%	2%	

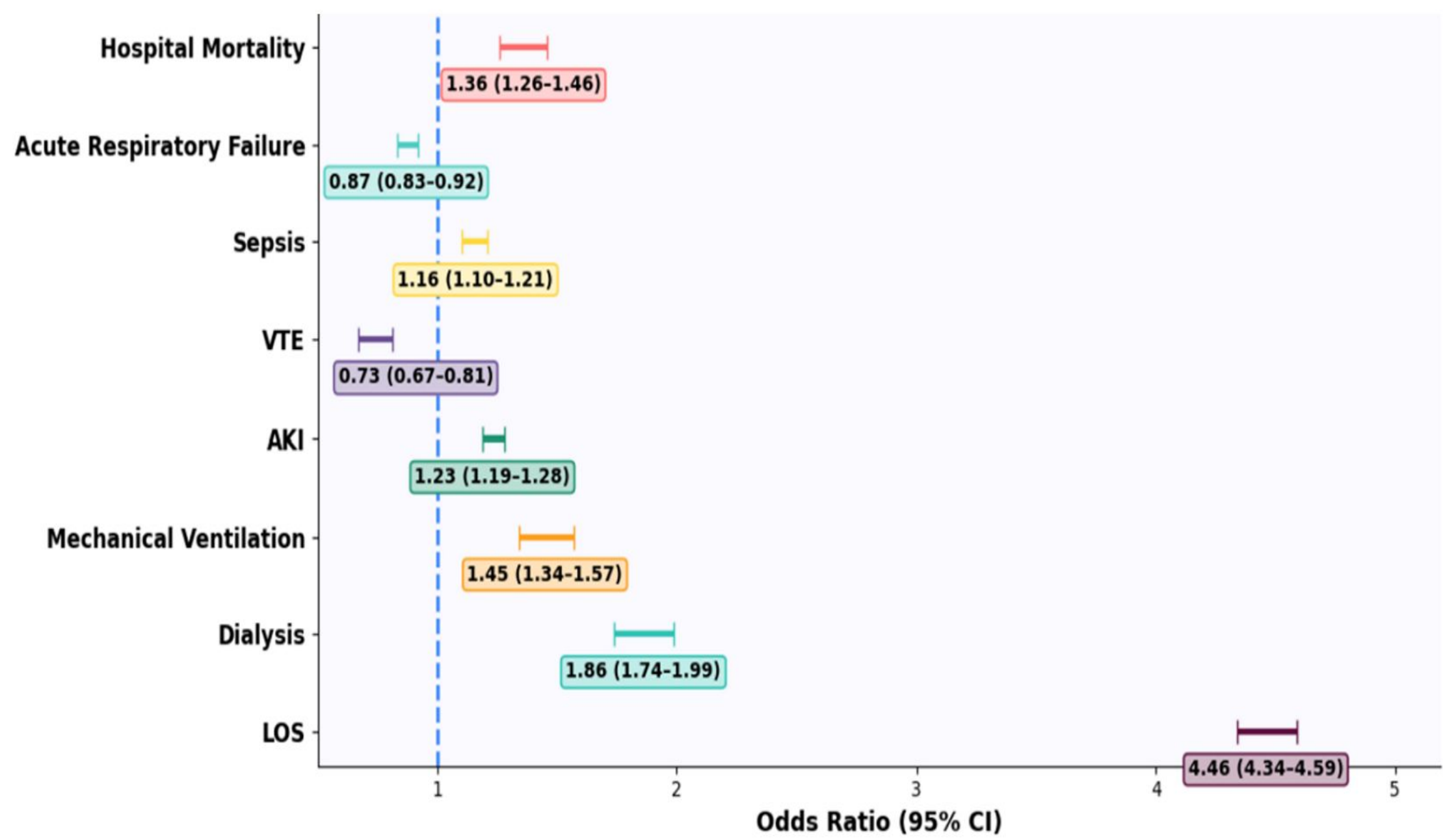
- Among 430,450 weighted hospitalizations,
- 93,770(22%) underwent ASCT, they were:
 - younger (mean 67 vs 70 years)
 - more likely to be female (45% vs 44%)
 - more likely to be classified as a minority (38% vs 33%),(all $p<0.001$).

References

- Rajkumar SV. Multiple myeloma: 2024 update on diagnosis, risk-stratification, and management. *American Journal of Hematology*. 2024. Establishes modern treatment algorithms and confirms that transplant-eligible patients typically receive induction followed by ASCT.
- More S, et al. Autologous Stem Cell Transplantation in Multiple Myeloma. *Cancers*. 2022.Comprehensive review of the role of ASCT and evolving transplant strategies.
- Suzuki K, et al. Efficacy of Autologous Stem Cell Transplantation for Multiple Myeloma. *Diagnostics*. 2023.

Results

Figure 1: Adjusted Odds Ratio of ASCT vs Non-ASCT Hospitalizations



- After adjustment, ASCT hospitalizations were associated with
- increased odds of :
 - hospital mortality (aOR 1.3, 1.26-1.46)
 - sepsis (aOR 1.16, 95% CI: 1.10-1.21),
 - AKI (aOR 1.23, 95% CI: 1.19-1.28),
 - mechanical ventilation (aOR 1.45, 95% CI: 1.34-1.57),
 - dialysis (aOR 1.86, 95% CI: 1.74-1.99).
 - length of stay (aOR 4.46, 95% CI: 4.34-4.59)
 - decreased likelihood of :
 - respiratory failure (aOR 0.87, 95% CI:0.83-0.92)
 - venous thromboembolism (aOR 0.733, 95% CI: 0.67-0.81)
 - (all $p<0.001$)

Conclusions

- ASCT admissions had a distinct patient profile, as these patients were more likely to be younger, female, and belong to a minority population
- Although patients selected for ASCT are generally identified due to their fitness to undergo the procedure, however ASCT was associated with increased odds of mortality, sepsis, AKI, mechanical ventilation, and dialysis
- Risk stratification is essential to aid decision making to optimize patient outcomes.