

Impact of Chronic Kidney Disease on Clinical Outcomes and Resource Utilization in Hematopoietic Stem Cell Transplantation

Insights from the Nationwide Readmissions Database

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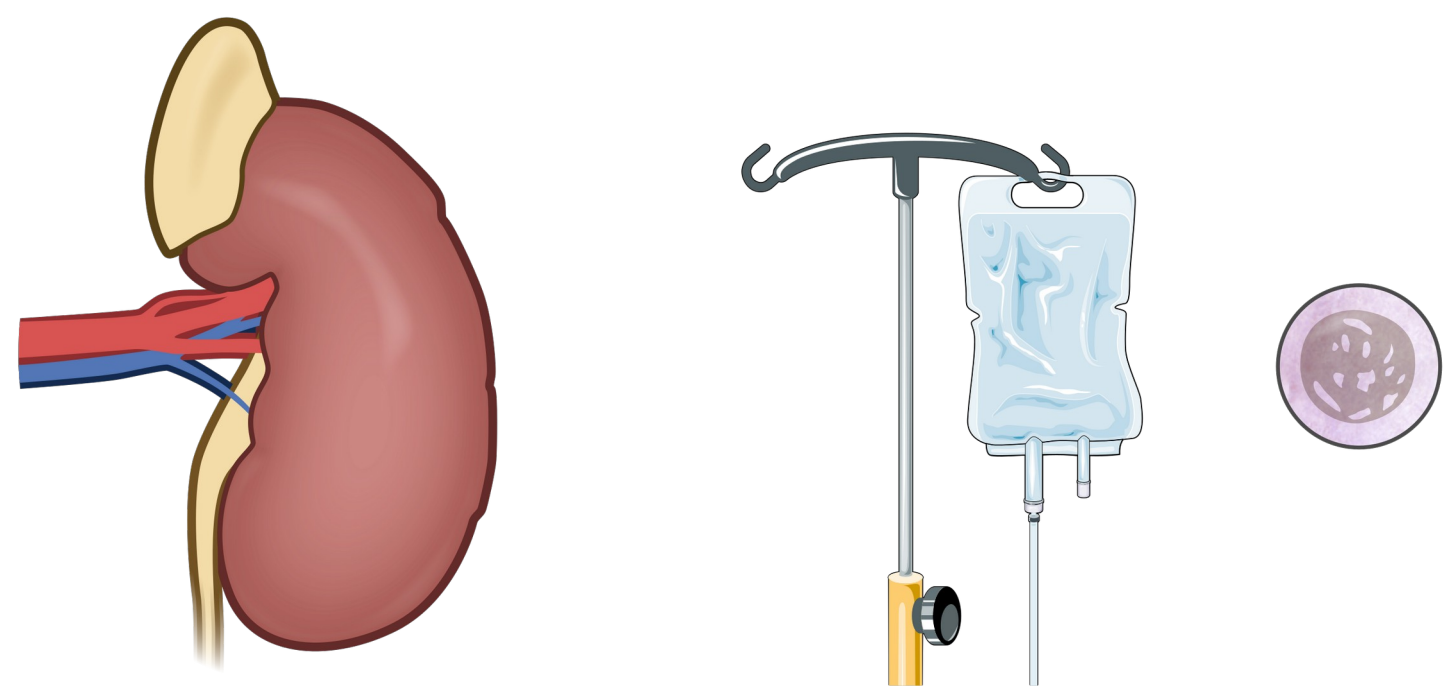
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Introduction

Pre-existing chronic kidney disease (CKD) presents considerable obstacles in hematopoietic stem cell transplantation (HSCT). However, nationally representative data on 30-day readmission trends and outcomes remains scarce.



Chronic kidney disease meets stem cell transplantation

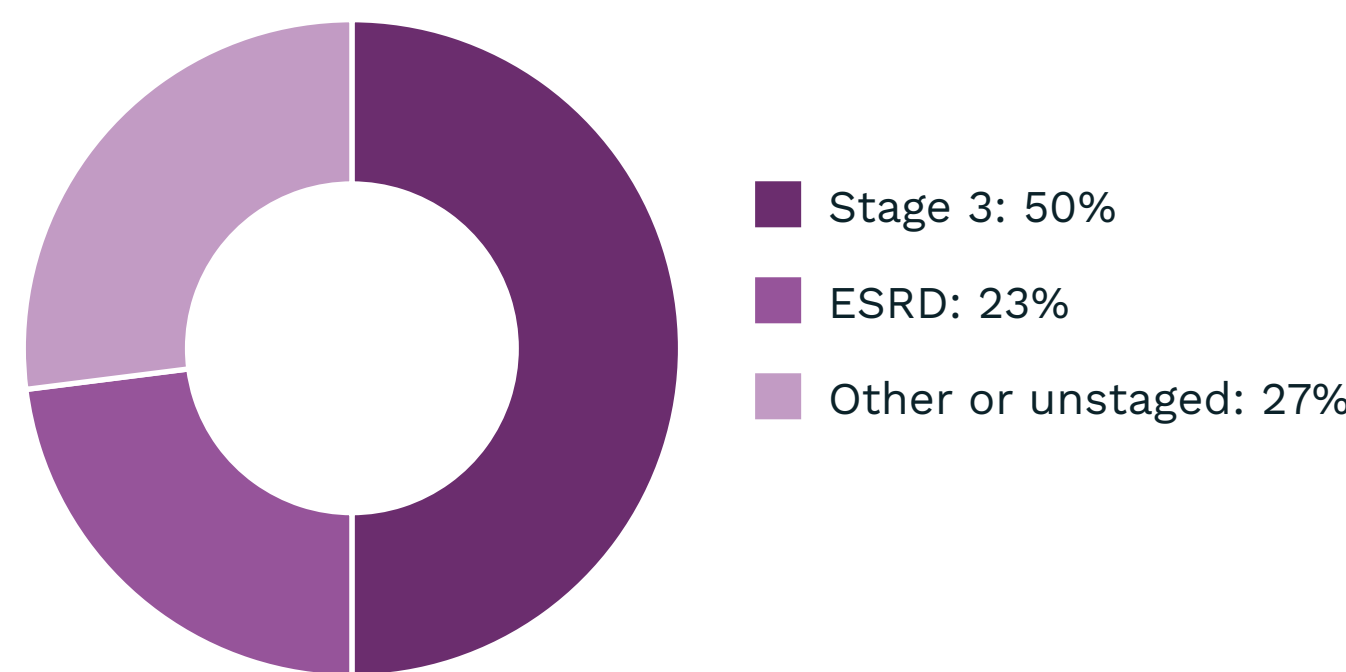
Aim

To evaluate the impact of baseline CKD on clinical outcomes and healthcare resource utilization in adult HSCT patients using nationally representative data.

Method

- Cohort: 54,839 weighted adult HSCT hospitalizations analyzed from the 2016–2017 Nationwide Readmissions Database (NRD).
- Stratification: Patients stratified by CKD vs. No CKD status.
- Analysis: Multivariable Cox regression utilized, adjusting for demographics, Elixhauser Comorbidity Index, acute complications, and hospital-level factors.

CKD severity



Primary outcome 30-day all-cause readmission after the index HSCT hospitalization.

Results — baseline characteristics and unadjusted outcomes

	CKD n=7,707 · 14.1%	No CKD n=47,132 · 85.9%	
Age, years mean	66	59	p<0.001
Elixhauser Comorbidity Index mean	5.71	3.09	p<0.001
30-day readmission	12.0%	7.5%	p<0.001
In-hospital mortality	4.6%	2.0%	p<0.001
Non-home discharge	27%	13%	p<0.001
Index length of stay median days	15	15	p=0.5
Mean charges USD	\$218,895	\$237,756	p<0.001
Autologous transplant	94%	85%	—

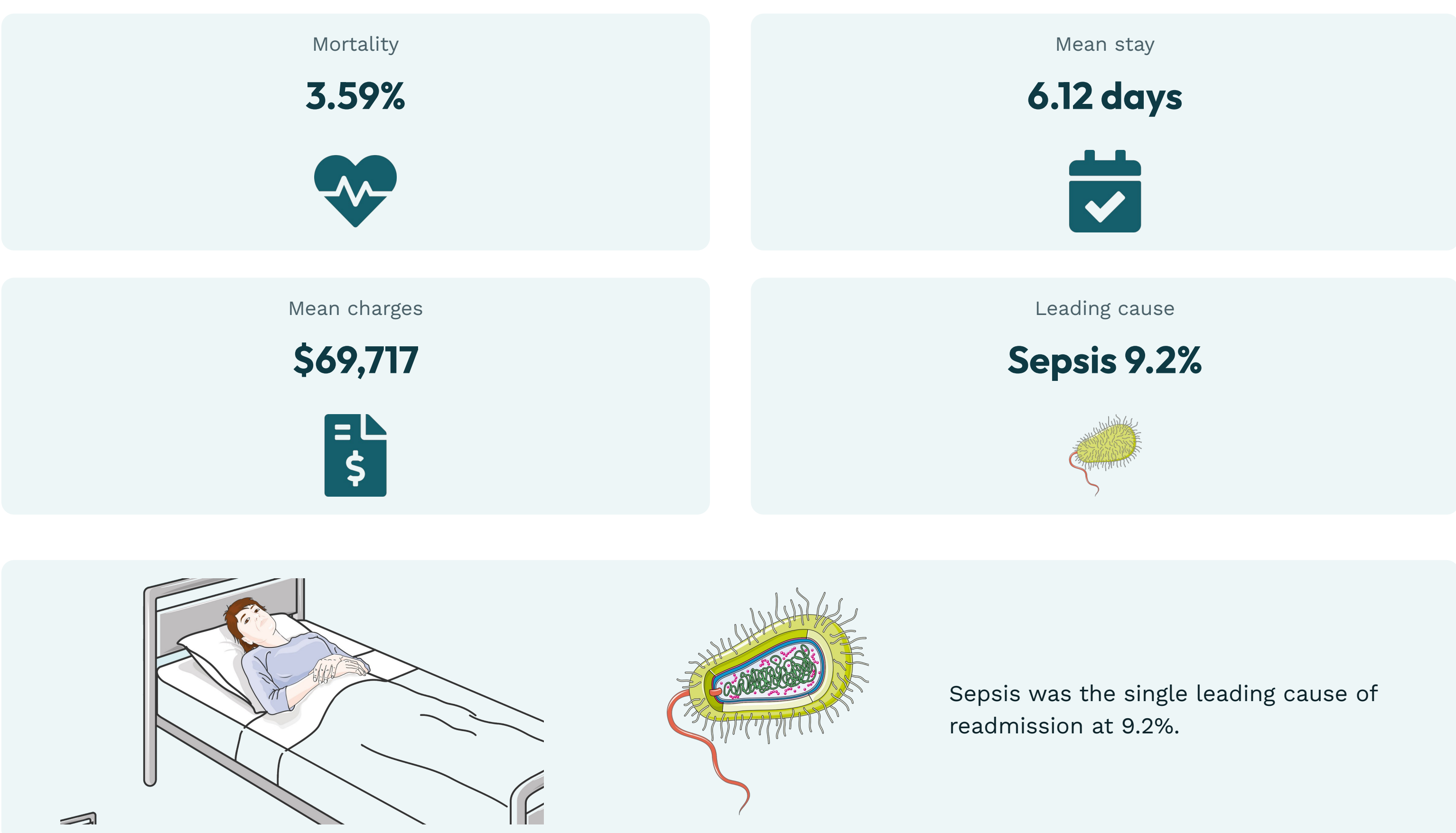
CKD patients were older with a higher comorbidity burden and worse unadjusted outcomes. Median stay was identical, yet mean charges were lower in CKD, likely reflecting the higher proportion of autologous transplants.

Results — adjusted predictors of 30-day readmission

Predictor	aHR (95% CI)	p-value
CKD (vs. no CKD)	0.88 (0.79–0.99)	0.040
Acute kidney injury	1.13 (1.02–1.26)	0.020
Autologous HSCT	1.25 (1.07–1.46)	0.006

Adjustment reverses the CKD signal: the excess readmission risk sits with the acute event, not the chronic diagnosis.

Readmission burden



Conclusions

Paradox

While CKD identifies high-risk patients with elevated crude morbidity, the adjusted readmission risk is primarily driven by acute complications (acute kidney injury) rather than baseline CKD alone.

Clinical action

Emphasize aggressive AKI prevention protocols.

Discharge planning

Implement comprehensive, early discharge planning given the significant 27% non-home discharge rate in CKD patients.

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