The UNIVERSITY of OKLAHOMA HEALTH SCIENCES

Racial And Demographic Predictors Of Inpatient Outcomes And Costs Among Car-t Patients With Hematologic Malignancies: A Nation-wide Cohort

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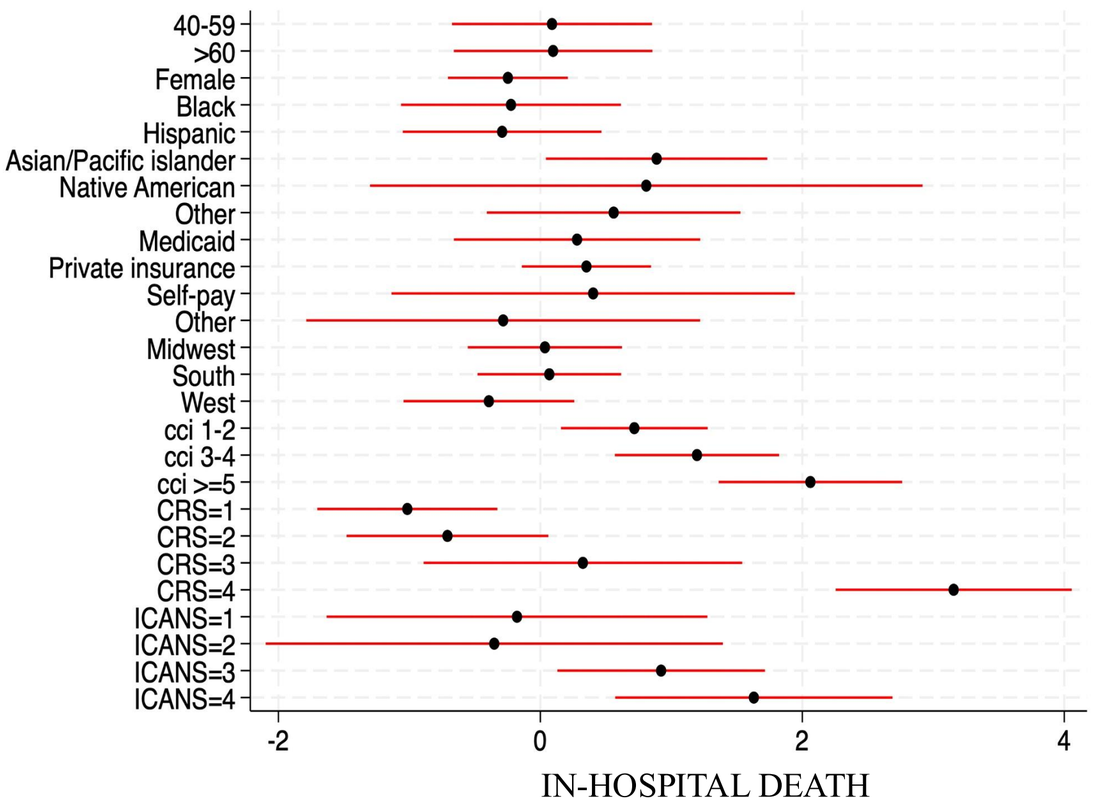
Introduction

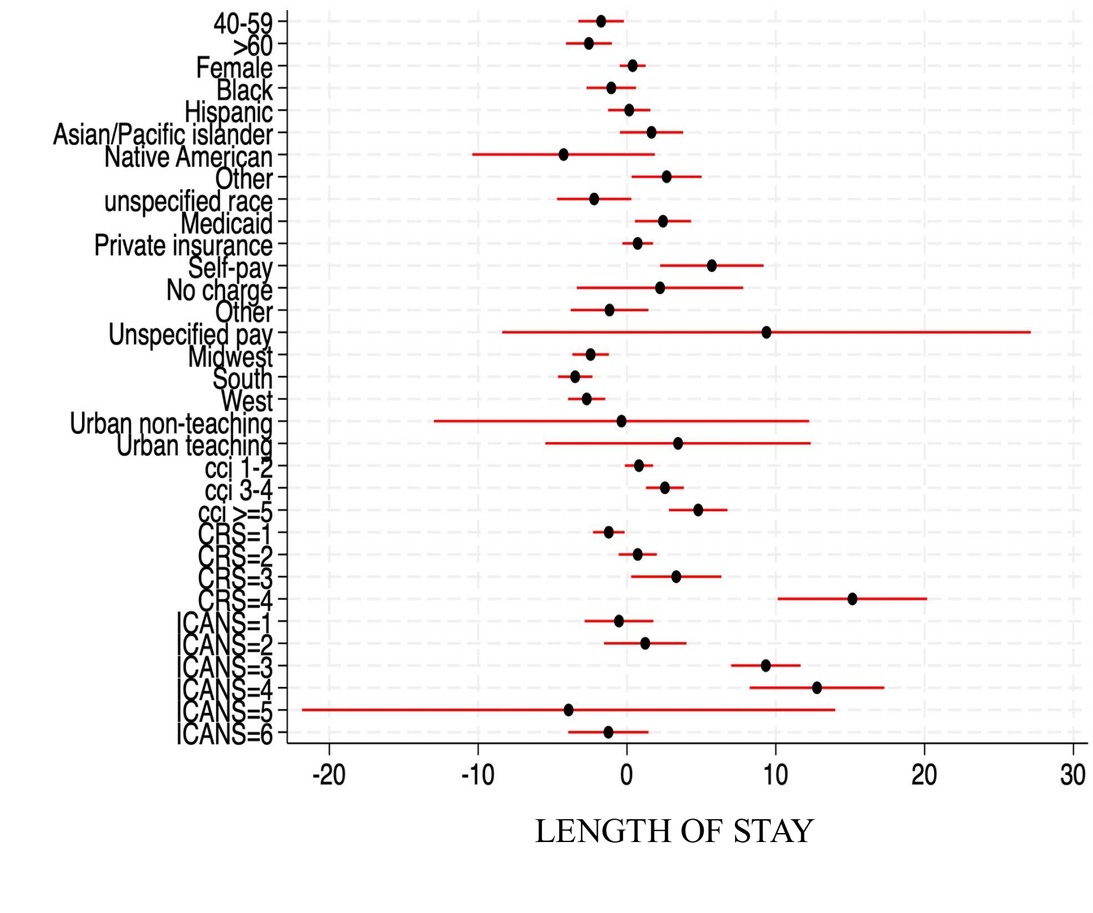
Chimeric antigen receptor (CAR) T cell therapy has revolutionized the management of hematological malignancies. Understanding the demographic factors influencing mortality, Length of Stay (LOS), hospital costs, is crucial for healthcare planning, research and resource allocation.

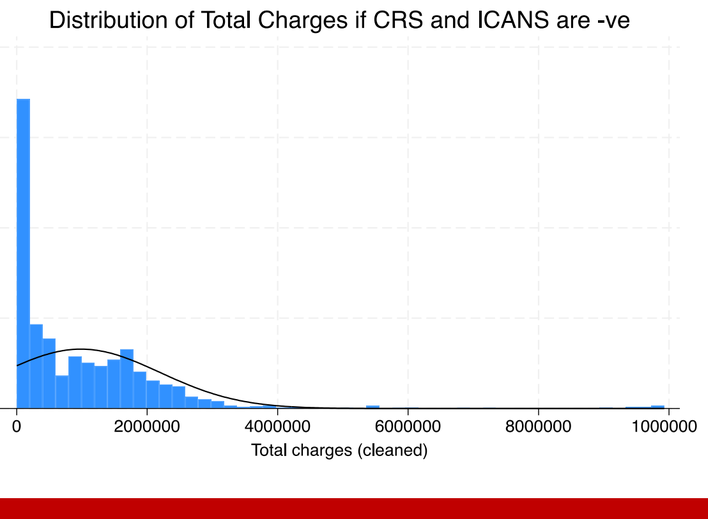
Methods

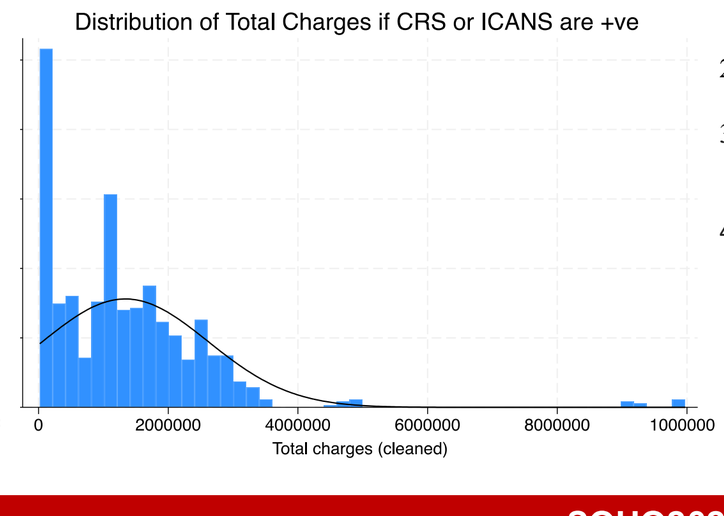
We conducted a retrospective cohort analysis of de-identified National Inpatient Sample from 2018 to 2022. Patients receiving CAR-T were identified with specific ICD-10 diagnostic and procedure codes. We used logistic regression for multivariate analysis of mortality, linear regression for Length of Stay (LOS) while hospital costs (total charges) were modeled via a generalized linear model.

34 Million hospitalizations (2018-2022) → 3,634 CART patients identified









Results

- Among 34 million hospitalizations, 3,634 of the patients receiving CAR-T were admitted from 2018-2022. Among them, 37.3% were female.
- Mortality was significantly higher among Asian and pacific islanders [OR: 2.43, p = 0.039].
- Among a total of 1558 patients who developed CRS or ICANS, 12 of them died in hospital. CRS grade 4 [OR 23.47 p<0.01] and ICANS grade 4 [OR 5.10 p< 0.01] were very strong predictors of death.
- Older age groups (40–59 and >60) were associated with shorter LOS, while insurance type, particularly Medicaid and self-pay, was linked to increased LOS.
- Among comorbidities, dementia, hemiplegia, complicated diabetes, peptic ulcer disease, cerebrovascular disease, and metastatic cancer were all associated with substantial increases in LOS, with dementia and hemiplegia contributing over 19 additional days.
- Although death was not significantly associated with increased costs, LOS was also significant predictor of higher costs. Mean cost if either CRS or ICANS were present was 1,338,880 $ vs 984,647 $ if they were absent.
- Patients aged over 60 and specific comorbidities including congestive heart failure, peripheral vascular disease, cerebrovascular accident, dementia, chronic obstructive pulmonary disease, diabetes mellitus, hemiplegia, renal failure, metastatic cancer, and severe liver disease were associated with increased costs.
- Conversely, urban non-teaching hospitals and the southern region were associated with lower costs.

Summary

- This study highlights the critical impact of demographic factors, clinical severity and comorbidities on both hospital length of stay (LOS) and in-hospital mortality its costs among patients undergoing CAR-T.

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