

COVID-19 CO-INFECTION AS AN EMERGING DRIVER OF SEPSIS-RELATED INPATIENT MORTALITY IN CHRONIC LYMPHOCYTIC LEUKEMIA: A 2020-2022 NATIONAL INPATIENT SAMPLE ANALYSIS

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INTRODUCTION

Patients with chronic lymphocytic leukemia (CLL) are particularly vulnerable to severe infections due to disease-related immune dysfunction, treatment-associated immunosuppression, and advanced age.

Sepsis remains an important cause of morbidity and mortality in this population.

The impact of COVID-19 co-infection on contemporary sepsis outcomes in patients with CLL remains important to characterize.

AIM

To evaluate national trends, clinical outcomes, and predictors of inpatient mortality among patients with CLL hospitalized with sepsis from 2020-2022, with a specific focus on COVID-19 co-infection.

METHOD

Data source: National Inpatient Sample, 2020-2022
Population: Adults with CLL admitted with a principal diagnosis of sepsis, identified using ICD-10-CM codes
Primary outcome: Inpatient mortality
Secondary outcomes: Length of stay, hospital charges, acute kidney injury (AKI), mechanical ventilation, vasopressor use, and atrial fibrillation
Analysis: Weighted national estimates and multivariable logistic regression adjusting for demographics, insurance, neighborhood income, hospital characteristics, comorbidity burden, and COVID-19 co-infection

CONCLUSIONS

- Sepsis-related inpatient mortality in patients with CLL remained persistently high from 2020-2022.
- COVID-19 co-infection became increasingly prevalent and was independently associated with a >2-fold increase in the odds of inpatient death.
- These findings highlight the continued vulnerability of patients with CLL to severe infection and support infection prevention, early sepsis recognition, COVID-19 risk mitigation, and equitable supportive care.

RESULTS

Mortality remained persistently high

2020: **15.9%**
2021: **17.9%**
2022: **15.6%**

No significant improvement over time (**p=0.853**)

COVID-19 co-infection increased substantially

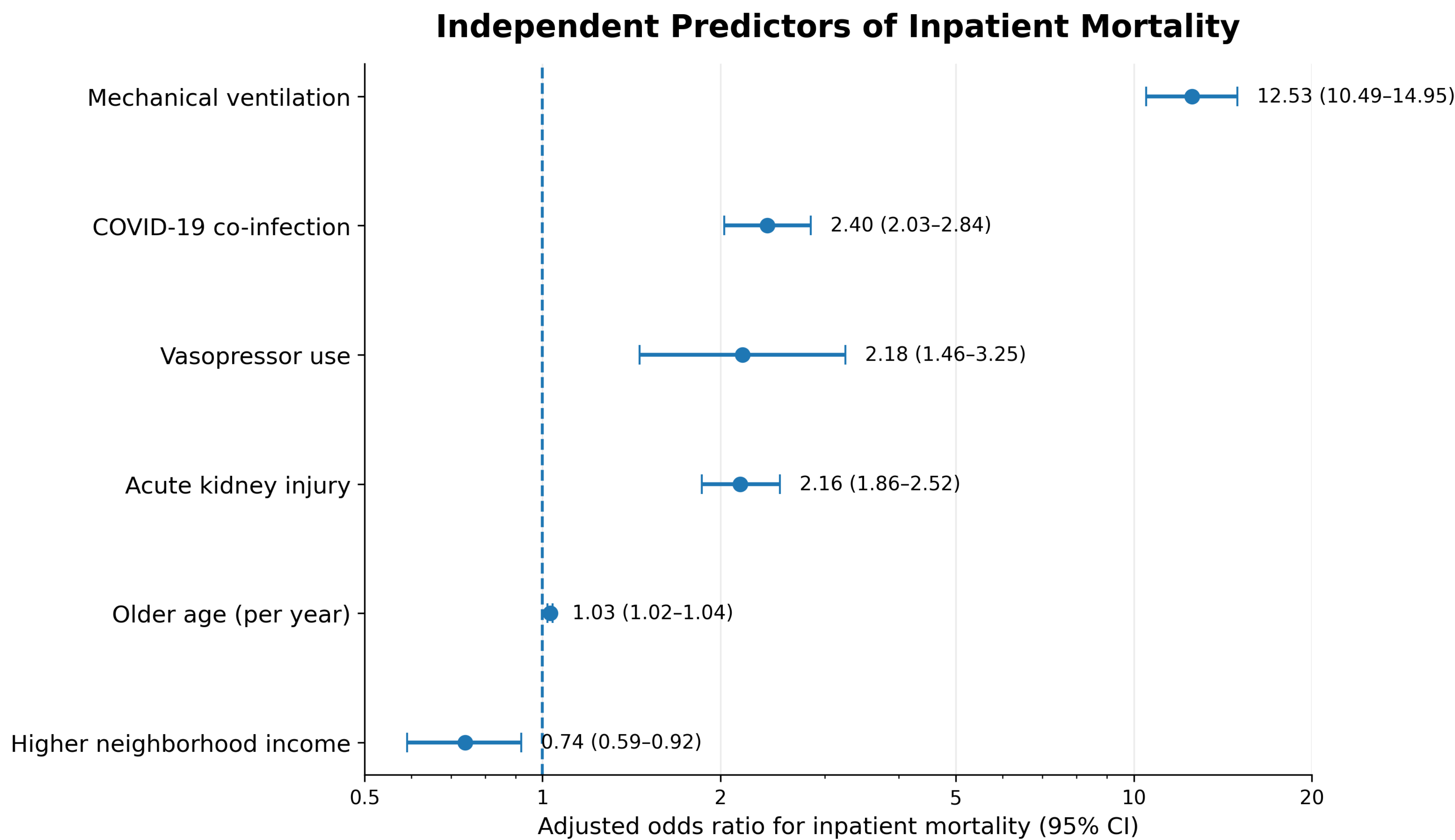
2020: **13.5%**
2022: **24.5%**

Independent predictors of inpatient mortality

Mechanical ventilation: **OR 12.53** (95% CI 10.49–14.95)
COVID-19 co-infection: **OR 2.40** (95% CI 2.03–2.84)
Vasopressor use: **OR 2.18** (95% CI 1.46–3.25)
Acute kidney injury: **OR 2.16** (95% CI 1.86–2.52)
Older age: **OR 1.03 per year** (95% CI 1.02–1.04)

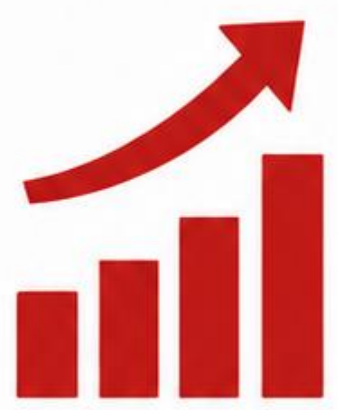
Higher neighborhood income was associated with **lower mortality**: OR 0.74 (95% CI 0.59-0.92)

Despite declining rates of mechanical ventilation and AKI, **overall mortality did not improve from 2020-2022.**



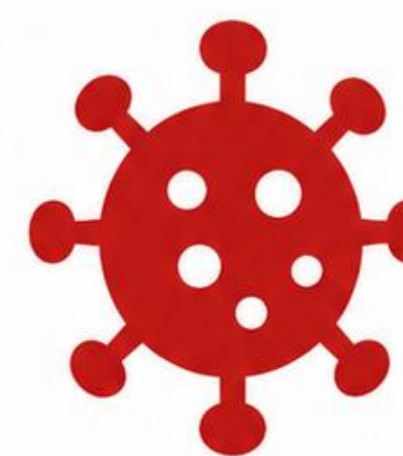
36,300

estimated sepsis hospitalizations
among patients with CLL



15.6%–17.9%

annual inpatient mortality



2.40×

adjusted odds of death with
COVID-19 co-infection