

Suicide Mortality Among Hematological Malignancy Survivors

A Population-Based SEER-CDC Analysis



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INTRODUCTION

Survivors of hematological malignancies face substantial psychological distress from prolonged treatment, relapse uncertainty, and often incurable disease, all of which raise the risk of suicide. Earlier work has shown a higher suicide risk in cancer survivors in general, but detailed analyses by disease subtype within hematological malignancies are still limited.

AIM

To describe patterns of suicide mortality across 16 hematological malignancy subtypes, and to identify the demographic and social factors that mark the highest-risk patients, so that psychosocial screening can be targeted to those who need it most.

METHOD

- We studied 954,896 patients aged 15 years and older, diagnosed with a hematological malignancy between 2000 and 2022 in the Surveillance, Epidemiology, and End Results (SEER) 17-registry database.
- Suicide deaths were identified from the SEER cause-of-death recode variable.
- Standardized mortality ratios compared the observed suicide rate with the age- and sex-matched suicide rate for the United States general population (Centers for Disease Control and Prevention WONDER).
- Cumulative incidence of suicide was estimated with the Aalen-Johansen method, treating cancer death and other-cause death as competing events.
- Independent risk factors were identified with multivariable logistic regression, and the trend over time was assessed with Joinpoint regression.

CONCLUSIONS

- Survivors of hematological malignancies carry a 39% higher risk of suicide than the general population, with clear variation by subtype.
- Acute myeloid leukemia, mantle cell lymphoma, and myelodysplastic syndromes carry the greatest risk, and the first year after diagnosis is a critically vulnerable period (standardized mortality ratio 17.28).
- Male sex and unmarried status, particularly divorced or separated and single patients, were each independently linked to higher risk.
- **A steadily rising trend over time points to the need for early, risk-adapted psychosocial screening and integrated mental-health support, especially for high-risk subtypes and socially vulnerable patients.**

RESULTS

Joinpoint regression: a steadily rising trend (annual percent change +2.30% per year, P < 0.05) with no change point across 2000 to 2022

954,896

Patients analyzed
aged 15 and older, 2000 to 2022

1,244

Deaths by suicide
25.3 per 100,000 person-years

1.39

Overall standardized mortality ratio
95% CI 1.32–1.47 · 39% above general population

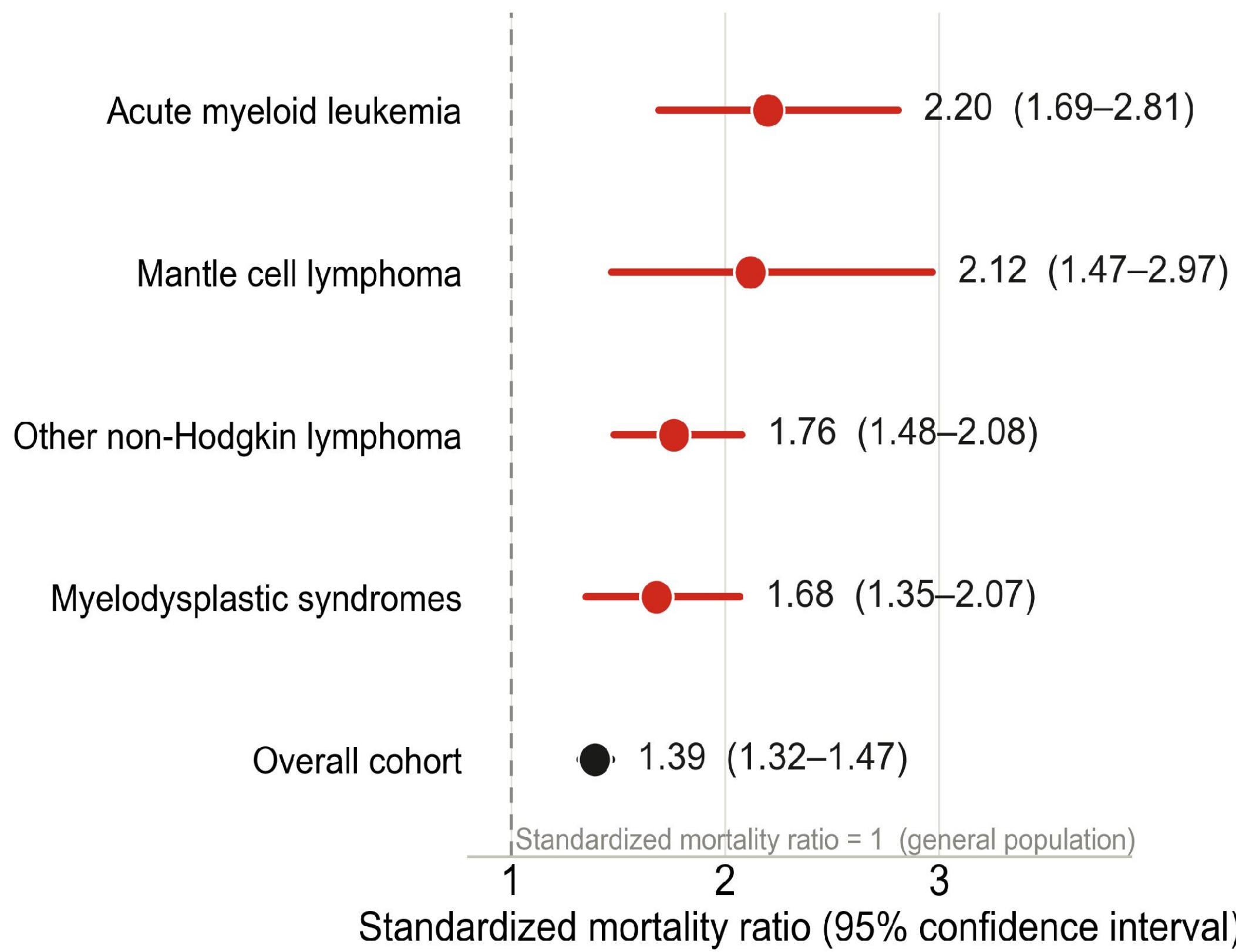
17.28

Standardized mortality ratio, first 12 months
95% CI 15.50–19.22

5.26

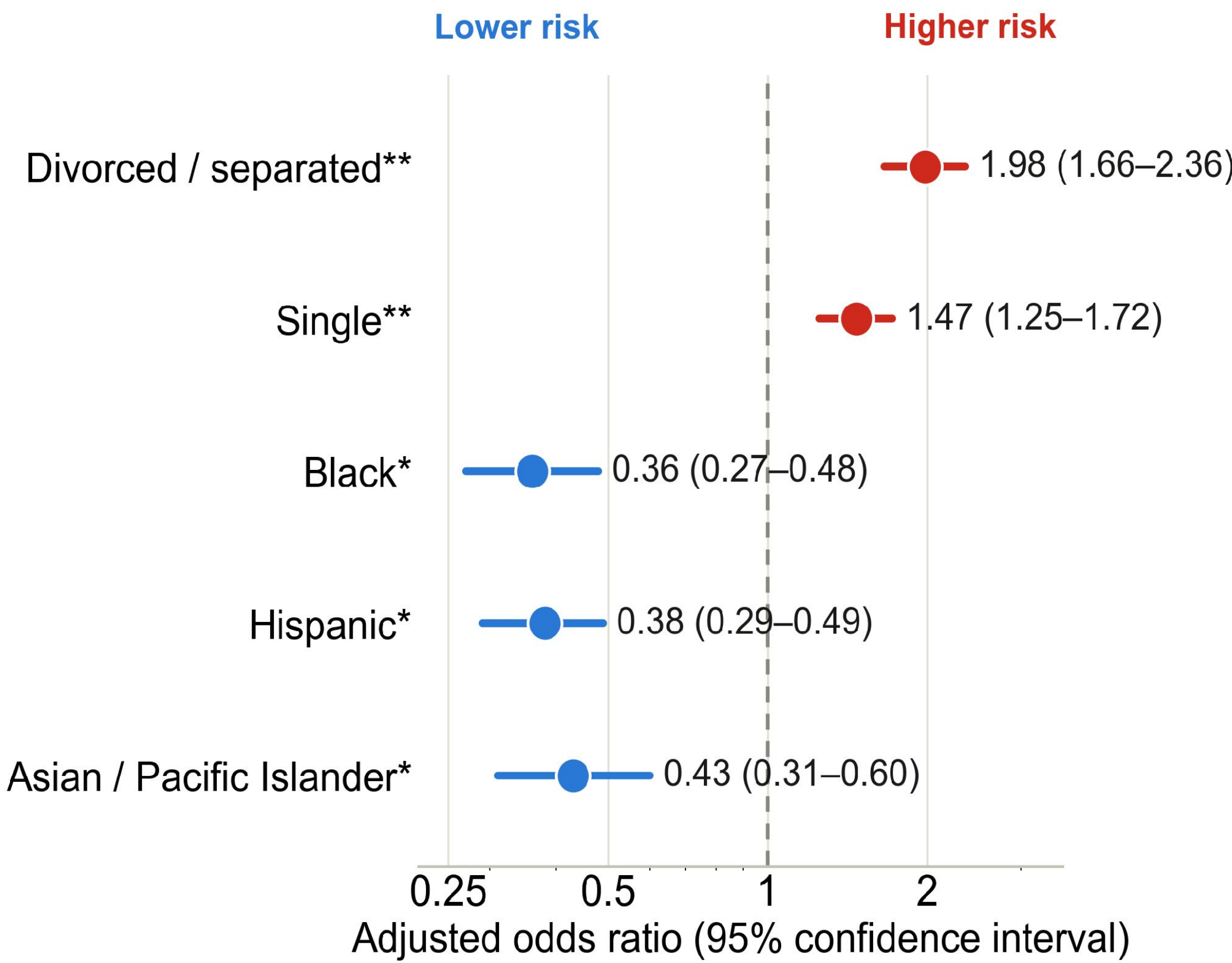
Adjusted odds ratio, male sex
versus female (multivariable)

Suicide risk by malignancy subtype



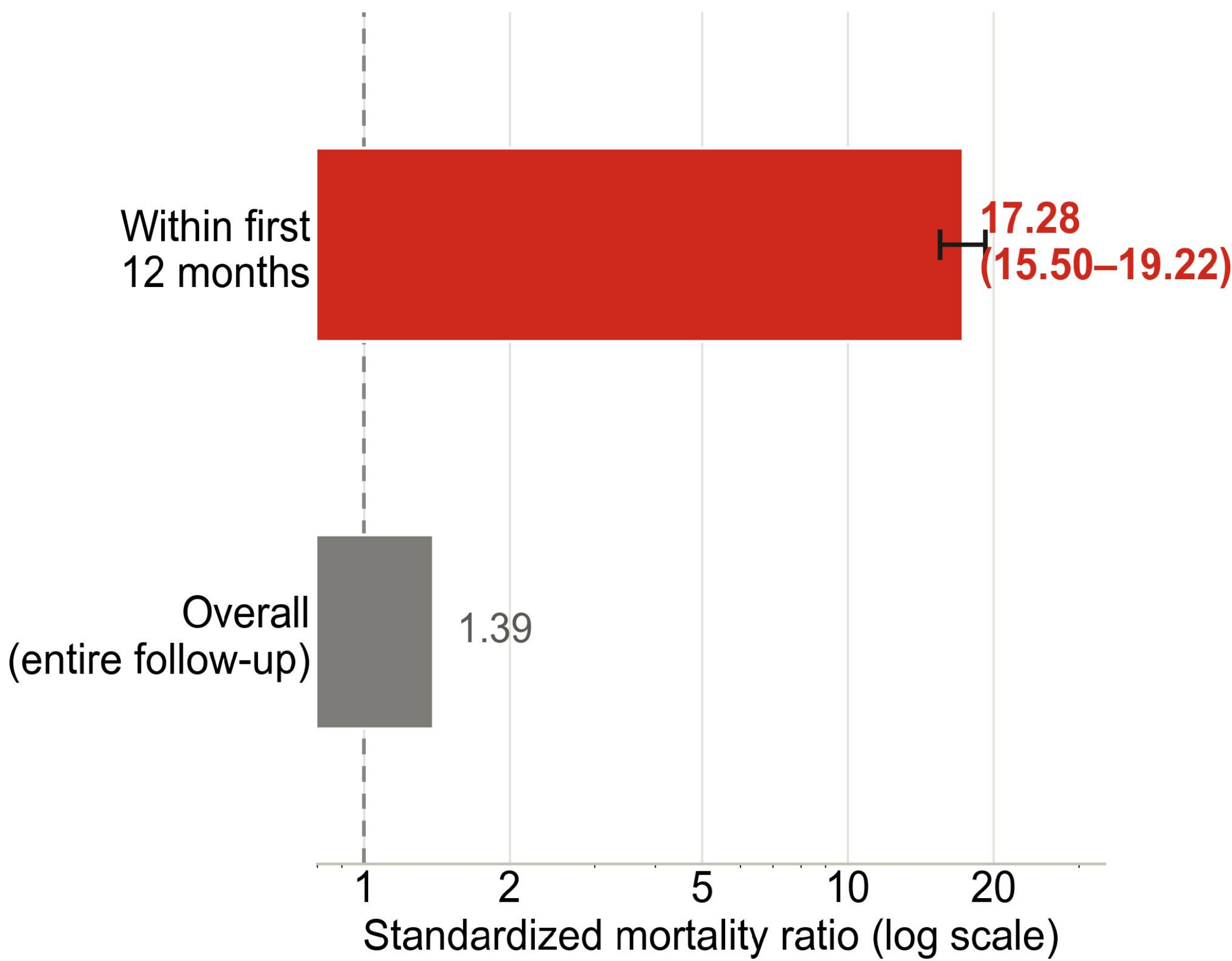
Standardized mortality ratios versus the general population; all elevated subtypes shown in red.

Independent risk factors



Multivariable model. Race categories are versus White; marital categories are versus married. Male sex: odds ratio 5.26 versus female.

The first year is the danger zone



Suicide standardized mortality ratio within 12 months of diagnosis versus the entire follow-up (log scale).

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