

Projections of Increasing Sex, Geographic, and Age-Based Mortality Disparities in Burkitt Tumor: A Centers for Disease Control and Prevention WONDER Database Analysis Through 2035

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INTRODUCTION

Burkitt tumor is a highly aggressive B-cell malignancy requiring intensive chemo-immunotherapy.¹ While therapeutic advancements have improved overall survival, the equitable distribution of these gains remains unquantified. We sought to project future mortality trends and analyze the evolving demographic disparities in the United States.

AIM

To characterize projected Burkitt tumor mortality trends through 2035 and assess disparities by age, sex, and geographic residence in the United States.

METHOD

- **Data source:** CDC WONDER Multiple Cause of Death database²
- **Study period:** 1999–2020
- **Case definition:** Burkitt tumor (ICD-10-CM: C83.7)
- **Outcome:** Age-adjusted mortality rate (AAMR) per 100,000 population
- **Subgroup analyses:** Sex, age, and metropolitan vs nonmetropolitan residence
- **Statistical analysis:** Log-ARIMA (0,1,0) models with drift were used to project AAMRs through 2035. Model performance was assessed using mean absolute percentage error (MAPE).

CONCLUSIONS

While overall mortality is decreasing, the persistent increase in sex, geographic, and age-based gaps indicates that Burkitt tumor mortality is becoming increasingly concentrated in vulnerable populations. These widening survival chasms necessitate targeted healthcare resource allocation to address the unique needs of high-risk cohorts, particularly the elderly and those in rural settings.

RESULTS

National trend: The national age-adjusted mortality rate (AAMR) is projected to decline from **0.028 per 100,000 in 2021 to 0.021 per 100,000 by 2035**.

Sex disparity: The gap between males and females is projected to widen from **0.056** in 2021 (male: **0.071**; female: **0.015**) to **0.058** by 2035 (male: **0.076**; female: **0.018**).

Geographic disparity: The metropolitan–non-metropolitan gap is projected to increase from **0.043** in 2021 (non-metropolitan: **0.071**; metropolitan: **0.028**) to **0.105** by 2035 (non-metropolitan: **0.125**; metropolitan: **0.020**).

Age disparity: The gap between elderly and young adults is projected to increase from **0.149** in 2021 (elderly: **0.162**; young adults: **0.013**) to **0.181** by 2035 (elderly: **0.188**; young adults: **0.007**).

Overall, despite a projected decline in national mortality, substantial disparities are expected to persist and widen across sex, geographic location, and age groups by 2035.

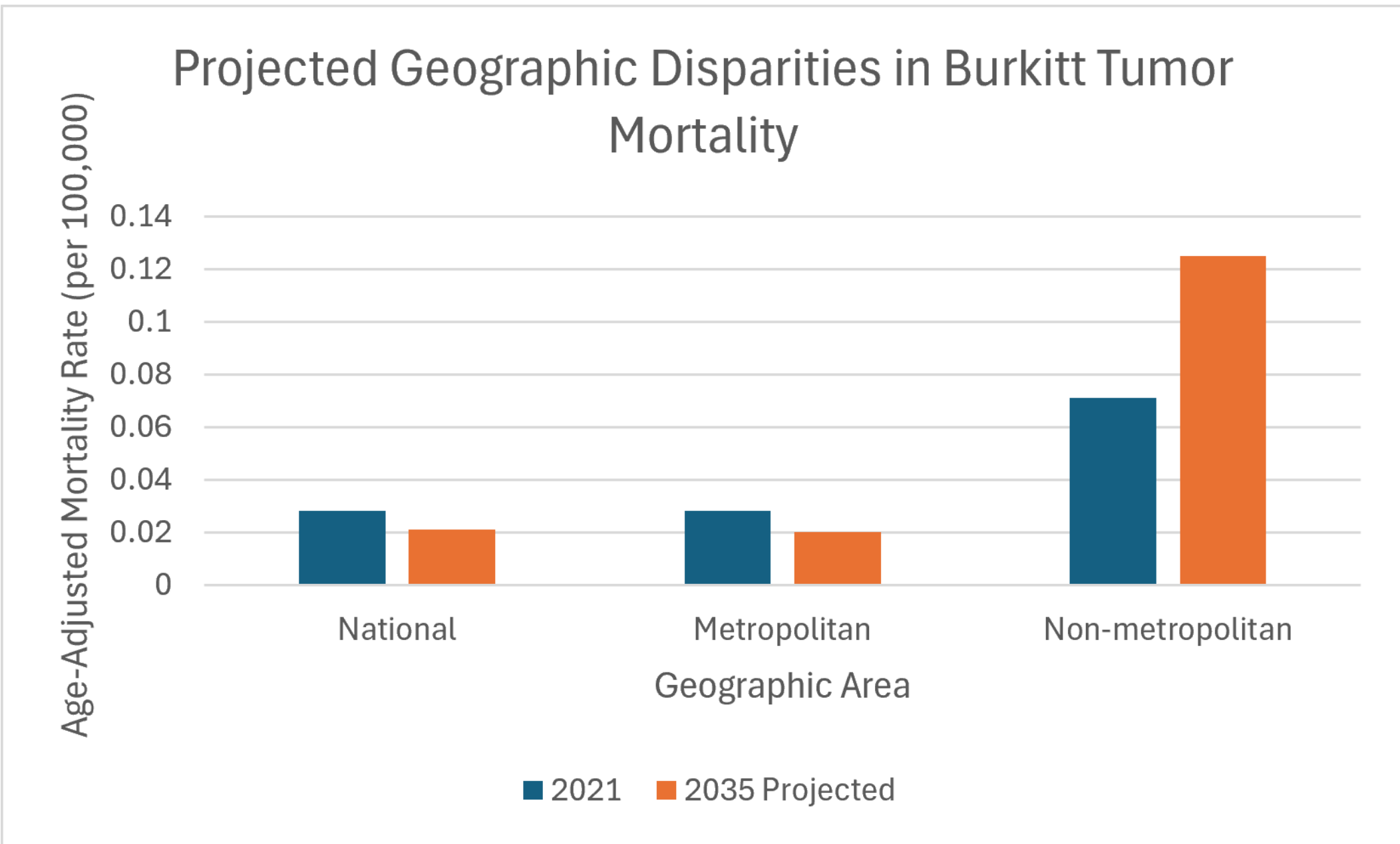


Figure 1. Projected geographic disparities in Burkitt tumor mortality, 2021–2035.

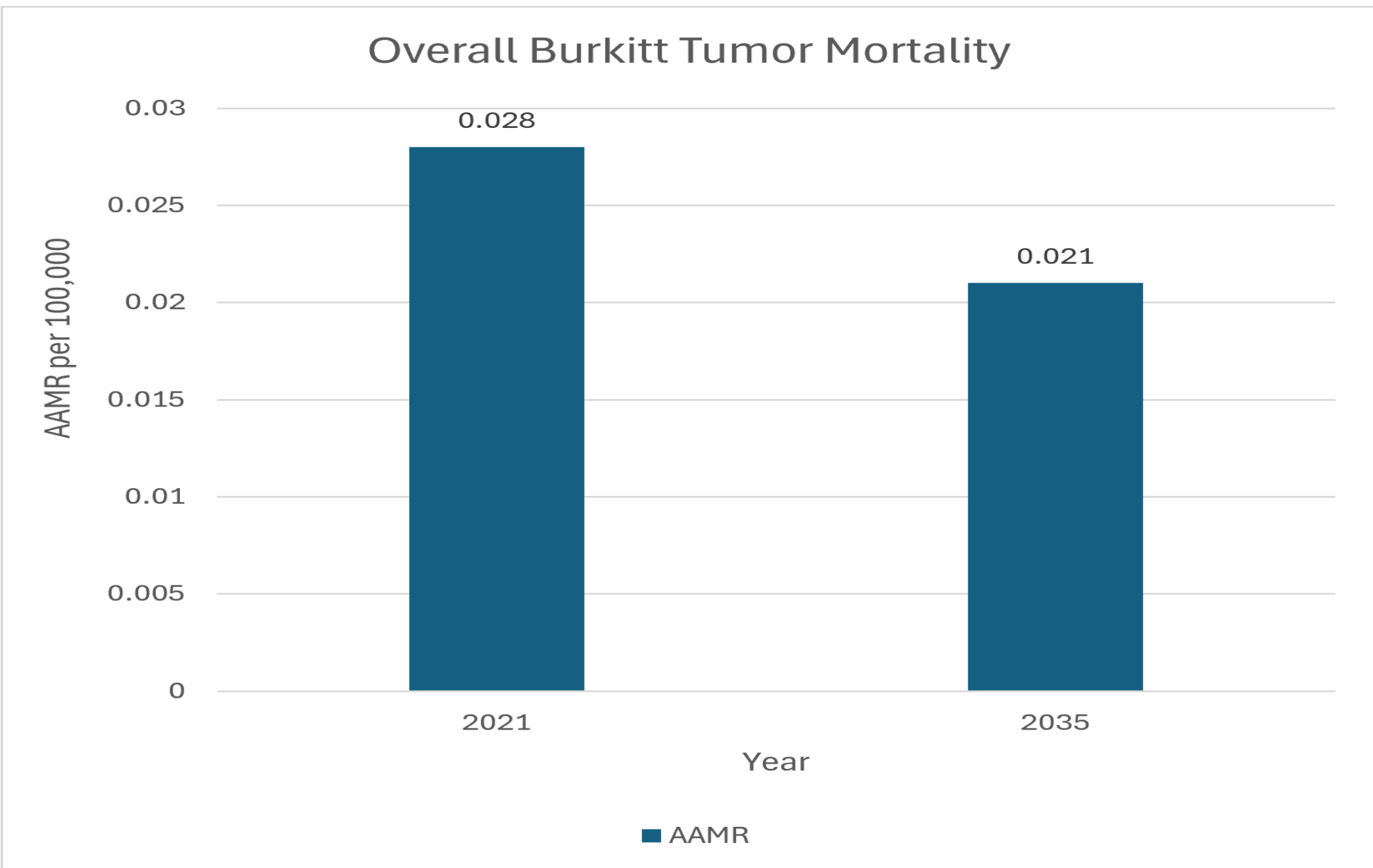


Figure 3. Projected overall Burkitt tumor mortality, 2021–2035.

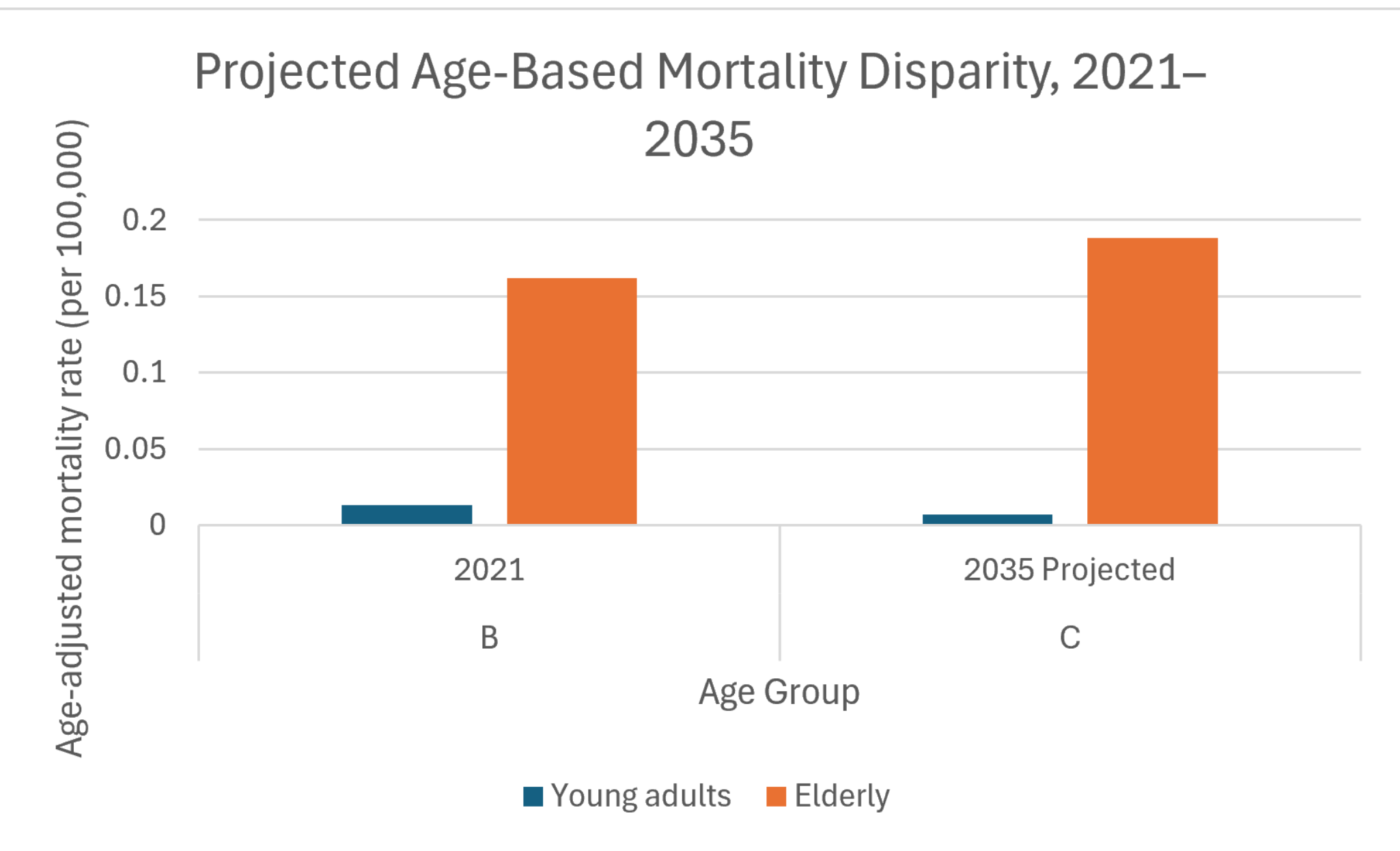


Figure 2. Projected age-based disparities in Burkitt tumor mortality, 2021–2035.

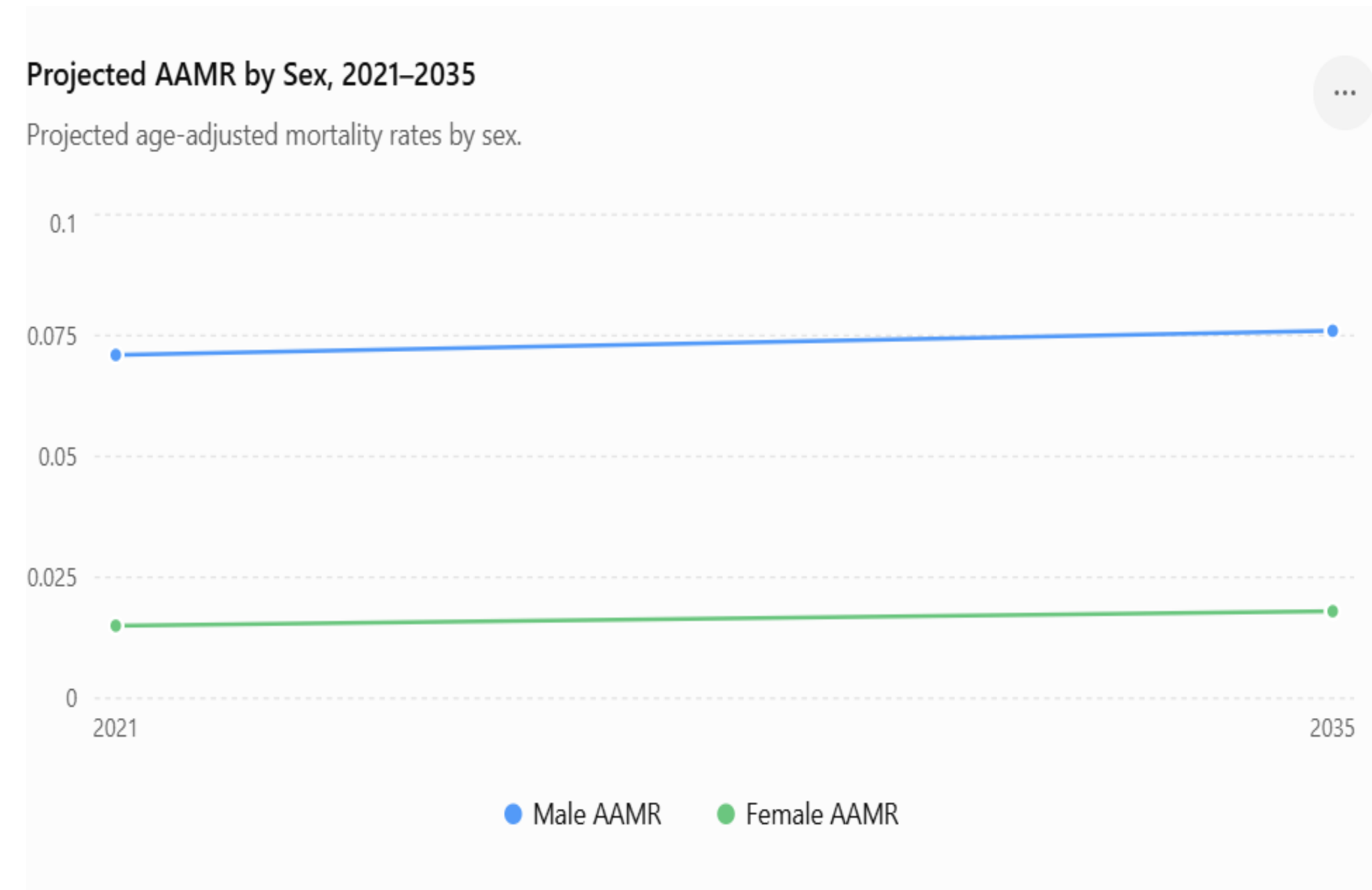


Figure 4. Projected sex-based trends in Burkitt tumor mortality, 2021–2035.

ACKNOWLEDGEMENTS

We acknowledge the Centers for Disease Control and Prevention for providing access to the mortality data used in this study and thank our colleagues for their support.

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REFERENCES

1. Roschewski M, Staudt LM, Wilson WH. Burkitt lymphoma: bridging the gap between advances in molecular biology and therapy. **Cancer Cell**. 2020;37(3):308-322.
2. Centers for Disease Control and Prevention. **Multiple Cause of Death Data on CDC WONDER** [Internet]. Atlanta (GA): CDC; 2026 [cited 2026 Aug 9]. [CDC WONDER Multiple Cause of Death Database](#)